EXPLORING THE CONCEPTUALIZATION OF U.S. ADOLESCENTS' PREGNANCY INTENTIONS

by
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ABSTRACT

Teen pregnancies have declined in the United States; however, disparities continue to persist. A greater understanding of how pregnancy intentions are conceptualized for adolescents, and the role of the social context may illuminate reasons for disparities. The aims of this study were to explore the contextual factors that frame how pregnancy intentions are developed and examine the multi-dimensionality of pregnancy intentions among U.S. adolescents 15 to 19 years old.

A convergent mixed-methods study design was applied. Thirteen focus groups (N=46) were conducted with adolescent females and males 15- 19 years old in Baltimore, Maryland. Participants were recruited from local high schools. A phenomenological approach was applied to analyze the data both deductively and inductively, allowing for themes to emerge and align within an existing conceptual framework. A nationally representative sample of adolescents 15-19 years old (N=3,812) were used from two cycles (2015-17 and 2015-19) of the National Survey of Family Growth (NSFG). A latent class analysis was conducted to identify profiles of pregnancy intentions, and multinomial logistic regression was used to assess predictors of class membership.

The integration of findings demonstrated that pregnancy intentions for adolescents are multi-dimensional and driven by complex social perspectives set in their context. Five social perspectives informed their intentions: sex is a gendered responsibility, teen pregnancy is cyclical and common, teen pregnancy is not a completely negative experience, having a child fulfills emotional and relational voids, and pregnancy should happen early, just not too early. Three latent classes of pregnancy intention were identified for adolescent females (*Delayed Pro-pregnancy, Immediate Pro-pregnancy, and Ambivalent-pregnancy*) and males (*Delayed Pro-pregnancy, Immediate Pro-pregnancy, and Anti-pregnancy*). Delayed Pro-pregnancy was the largest class across sexes. Age, receipt of public assistance, race, religion, age of mother at first birth and sexual activity were associated with class membership. Findings support adolescents having a full spectrum of pregnancy intentions, which slightly differ by sex.

Current approaches and messaging about adolescent sexual and reproductive health (SRH) are limited. A prevention-only lens is insufficient, therefore requiring SRH services to be more expansive in meeting the full spectrum of adolescent pregnancy intentions, including more inclusion of adolescent males.

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DEDICATION

In loving memory of my baby brother

BASSEY O. OFFIONG

You've made me proud to be your big sister, but I miss your presence and protection. I can only hope that your life in heaven is everything we've imagined plus more. While there is not a day that passes by that you aren't on my heart, I'm grateful that God has one of his most precious servants by his side. I love you BoBo.

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CHAPTER ONE

Introduction

1.1 Introduction

It has been estimated that one in every three adolescent girls in the United States will get pregnant before the age of 20, while difficult to capture, this statistic has declined over time. This is likely due to increased access to contraceptives, comprehensive sexual education, and more adolescents abstaining from sex (Martinez & Abma, 2015). The teen birth rate in the United States has declined 70% since 1991 (Martin, Hamilton, Osterman, Driscoll, & Drake, 2018). However, disparities in adolescent pregnancy and birth rates persist. The estimated pregnancy rate for non-Hispanic Black and Hispanic adolescents aged 15 to 19 was 76 and 61 per 1000 women, respectively, more than twice the rate for non-Hispanic White adolescents in the same age group (Kost, Maddow-Zimet, & Arpaia, 2017). In 2017, the teen birth rates for ethnic minorities were two to three times higher than those for White adolescents (Martin et al., 2018). Furthermore, the highest teen pregnancy and birth rates are geographically centered in southeastern and western states, and in rural areas. While traditionally teen pregnancies have been viewed as problematic and a societal burden (Anastas, 2017; Winters & Winters, 2012), these racial and geographical disparities support the need to explore and understand the range of motivations and context that inform adolescents' reproductive health decisions and behaviors.

Eighty percent of pregnancies among U.S. adolescents 15-19 years old are considered unintended (Guttmacher Institute,2019). Several studies have linked unintended pregnancies to adverse outcomes for adolescents including preterm births, lower educational attainment, lower income in adulthood, and exposure to intimate partner violence (Yazdkhasti, Pourreza, Pirak, & Abdi, 2015). Furthermore, unintended teen pregnancies are said to place both financial and social strains on society and have been estimated to incur between $4.5 to $12 billion annually in health costs (A. Thomas & Monea, 2011; Trussell et al., 2013). Similar to teen pregnancy and birth rates, there continues to be racial and socioeconomic disparities among unintended teen pregnancies. Minority and poor adolescents are 2 to 5 times as likely to report unintended

pregnancies in comparison to their White, more affluent peers (Finer, 2010; Finer & Zolna, 2014; Martin et al., 2018; Romero et al., 2016).

Research is limited in its ability to explore adolescents' pregnancy intentions due to current measures not fully capturing the scope of adolescents' perspectives and experiences as it relates to their reproductive health. Debates on the conceptualization and measurement of pregnancy intentions have centered around three primary issues. First, there lacks consensus on how to define the construct, which presents issues with interpretability for future work (Macutkiewicz & MacBeth, 2017; Paterno & Han, 2014). The National Survey of Family Growth (NSFG) defines an unintended pregnancy as either 'unwanted or mistimed at conception'. While it attempts to include two possible dimensions of intention, it does not fully capture the complexity of the construct, which might include emotions, readiness or cultural acceptability (Santelli, Lindberg, Orr, Finer, & Speizer, 2009; Speizer, Santelli, Afable-Munsuz, & Kendall, 2004).

Secondly, pregnancy intentions are dynamic and heavily influenced by the social context (R. K. Jones, Tapales, Lindberg, & Frost, 2015; Moreau, Hall, Trussell, & Barber, 2013). For example, the growing evidence on adolescents' ambivalent feelings toward pregnancy and contraception use are linked to their perceived partner's intention, cultural norms, and perceived agency within their environment (Alexander et al., 2019; Kraft et al., 2010). Lastly, men are rarely included in the discourse about pregnancy intentions, despite studies reporting that men are more likely to report happiness around a pregnancy or identify a pregnancy as intended (Kane, Lohan, & Kelly, 2019; Lindberg & Kost, 2014). Pregnancy intention is not solely a women's issue (Lohan, Cruise, O'Halloran, Alderdice, & Hyde, 2010, 2011); therefore, more inclusive reports from both men and women will provide an accurate portrayal of intentions and its association with other health outcomes. It is unclear how salient the current definitions of pregnancy intentions are to adolescent experiences. Thus, a gap in the literature regarding how adolescents perceive pregnancy intendedness remains.

Considering the challenges with measurement and narrative regarding adolescent reproductive health, there is a need to reframe how researchers examine and capture these attitudes and behaviors. Reproductive justice is a human rights perspective that acknowledges the intersectionality of personal identities, experiences, and context (Ross, 2017). But more specifically, it shifts the problematic narrative of teen pregnancies to a more inclusive framework, which supports an individual's inherent right to make decisions regarding their reproductive health. By applying a reproductive justice lens to adolescent pregnancy intentions, there is an opportunity to develop a more robust construct that more thoroughly captures the nuances of pregnancy intentions among adolescents.

Adolescent reproductive health should be approached holistically, as behaviors that are influenced by multiple dimensions (Bachrach & Morgan, 2013). While a pregnancy might not be intended or planned, adolescents may still experience happiness and desire surrounding the pregnancy (Aiken, Dillaway, & Mevs-Korff, 2015). Thus, expanding our understanding of adolescent experiences and its influence on their reproductive health will provide an opportunity to more accurately capture their pregnancy intentions (Aiken, Borrero, Callegari, & Dehlendorf, 2016; Kost & Zolna, 2019). A robust measure of pregnancy intentions would allow researchers and practitioners to more accurately predict and prevent unintended pregnancies that may be the most harmful, while supporting the other decisions adolescents identify as best fit for their lives. The inclusion of youth voices in research will further cement our understanding of teen pregnancy as a social phenomenon and provide essential details on how to frame or shift efforts in supporting positive adolescent sexual and reproductive health. Therefore, the goal of this mixed methods dissertation is to explore the complex cognitive processes and social context that influence the formation and conceptualization of pregnancy intentions among U.S. adolescents.

1.1.1 Study Aims

The aims of the dissertation are:

Aim 1: To qualitatively, explore the social factors that influence how pregnancy intentions are conceptualized among adolescents 15 to 19 years in Baltimore, MD.

Aim 2: To characterize and examine the multi-dimensionality of pregnancy intentions among a nationally representative sample of U.S. adolescents 15 to 19 years old.

2a: To classify adolescents' perspectives of future pregnancies into profiles by sex

2b: To assess the demographic and social factors associated with adolescent pregnancy intention profiles by sex

1.2 Dissertation Overview

This dissertation is organized by chapters. The first chapter introduces the study, and an overview of the study aims. Chapter 2 presents a background and literature review of teen pregnancy, its epidemiology, and historical perspectives of teen pregnancy as a social epidemic. Next, pregnancy intentions are discussed including the challenges of measurement and the factors that inform adolescent reproductive decision-making. Based on the existing literature and research, the theoretical frameworks used to guide the study are presented and explained. Chapter 3 provides a detailed description of the study design and methodology, outlining the qualitative and quantitative research methods separately. The qualitative results from Aim 1 are presented in Chapter 4. Chapter 5 describes the quantitative results of Aim 2. Lastly, Chapter 6 provides a summary and integrated discussion of the findings, outlines the strengths and limitations, and explores implications for public health research and practice.

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CHAPTER TWO

Background and Theoretical Framework

2.1. Overview

This chapter provides an overview of the existing literature on teen pregnancy and social factors that influence adolescent reproductive health. Next, pregnancy intentions are discussed in depth as a gap to understanding adolescent reproductive behaviors and decision-making. The conceptual framework and theories applied to guide the research are explained and situated within the context of the existing literature. The chapter concludes with a rationale for the study and significance to the field of adolescent health.

2.2 Teen Pregnancy in the United States

Teen pregnancies, defined as those that occur before the age of 20, have remained a continued priority among public health practitioners, researchers, and policymakers. Since pregnancies among adolescents younger than 15 years old are rare, teen pregnancy and birth rates are generally reported and focused on 15- to 19-year-olds. In 2013, 448,440 teen pregnancies occurred, resulting in an estimated teen pregnancy rate of 43.1 pregnancies per 1000 females ages 15 to 19 (Kost et al., 2017). From 1990 to 2013, teen pregnancy rates for adolescents aged 15 to 17 and 18 to 19 declined by 72% and 56%, respectively. In 2017, the teen birth rate was 18.8 births per 1000 females ages 15 to 19, a 7% decline from the prior year and an all-time low (Martin et al., 2018). While this is a drastic decline since the 1990s, when the teen pregnancy rate was over 100 pregnancies per 1000 women aged 15 to 19, the United States still has one of the highest teen pregnancy rates globally among developed countries (Kirchengast, 2016).

While pregnancy and birth rates have declined consistently across each racial and ethnic group, there are still gaps between racial- and ethnic-specific rates. From 1991 to 2013, the pregnancy rate fell 66% among Black adolescents from 226 per 1,000 women to 76, and 64% among both Hispanic adolescents from 166 to 61 and Non-Hispanic White adolescents from 83 to 30 (Kost et al., 2017). Over time, Hispanic adolescents have shown the fastest decline in comparison to other racial groups. From 2016 to 2017, the teen birth rates declined 15% for Non-Hispanic Asians, 9% for Hispanics, 8% for Non-Hispanic Whites, 6%

for Blacks and 6% for American Indian/Alaska Natives (Martin et al., 2018). Nonetheless, pregnancy and birth rates for racial minority adolescents are more than double the rates for Non-Hispanic White adolescents, suggesting the need for further research on the cultural, social, and environmental factors that may contribute to these differences.

Geographically, the southeastern and southwestern states continue to report the highest rates. In 2013, New Mexico reported the highest teen pregnancy rate (62 per 1000 women aged 15 to 19) among all 50 states, followed by Arkansas (59), Texas (58), Oklahoma (58), and Mississippi (58) (Kost et al., 2017). However, Washington D.C. as a local jurisdiction has the highest teen pregnancy rate of 67 per 1000 women. Although there is insufficient data to report teen pregnancy rates at the local-level, teen birth rates, which are correlated with pregnancy rates, also indicate striking differences. Based on the Centers for Disease Control and Prevention (CDC), teen birth rates are highest among adolescents living in rural areas compared with those in urban communities (Hamilton, Rossen, & Branum, 2016). However, considering both racial and socioeconomic disparities, data from cities like Baltimore and Detroit, where the teen birth rate is twice that of the state statistic (Neall & Hurt, 2018; Michigan Department of Health and Human Sevices, 2017), support the continued priority of urban adolescents' reproductive health.

2.2.1 Historical Views of Teen Pregnancy

Since the 1970s, the discourse around teen pregnancy has been framed solely as a social problem, requiring intense attention from researchers, health professionals, and policymakers. Despite the social norm of adolescent pregnancies earlier in the 20th century, the shift away from marriage toward nonmarital childbearing caused concern and the emergence of a teen pregnancy "epidemic" (Barcelos, 2013; Irvine, 2008). This rhetoric, which was used under the Reagan administration, propelled a sexist, racist, and classist narrative, where a teen pregnancy became immoral (Cocca, 2002). With the increase in nonmartial childbearing, the notion of a teen pregnancy became negative, and an indication of welfare dependency,

low levels of education, and low paying jobs (Furstenberg, 2007; Luker, 1996). Young, single mothers were presumed to get pregnant for the sole purpose of receiving government aid and support, birthing the concept of "welfare queens." This derogatory term became synonymous with young, poor women of color, leading to a series of policies and programs to govern their reproductive behaviors and choices. Based on these concerns, welfare reform in 1996, officially titled the Personal Responsibility and Work Orientation Act (PRWORA), was an overt attempt to address the government's focus on preventing teen pregnancies among this vulnerable population. The reform limited financial support to 60 months and included work requirements for those receiving Temporary Assistance to Needy Families (TANF). But more explicitly, two of the four goals were to (1) prevent out of wedlock pregnancies and (2) encourage the formation and maintenance of two parent families, thereby "reducing illegitimacy".

The perception of teen pregnancy as a social problem continued into the early 2000s, despite the consistent decline of teen birth rates across the U.S. (Anastas, 2017). Kelly (1996) identified four narratives projected toward teen pregnancy: (1) *something is wrong with the girl*; (2) *results in making the wrong kind of family*; (3) *the wrong society*; and (4) *the stigma is wrong*. The first two narratives have been the foundation of several policies and prevention approaches, portraying the most stigmatized perceptions of young people, particularly those of color (Cocca, 2002). The negative connotation associated with teen pregnancies morphed into a racialized, social class issue. Geronimus (2003) argued that the negative representation of teen pregnancies as deviant behavior and an issue to be solved for Black youth, helped to support a white supremacist agenda in controlling the bodies of minority communities. In turn, this has shaped how adolescent reproductive health has been approached in the field of public health. Little literature has focused on how adolescents, particularly from racial minority communities, conceptualize pregnancy; the cultural, emotional, and social drivers of their behaviors; or its influence on their future pregnancy intentions. Instead, research has concentrated on the detriments of teen pregnancies on society and framing it as a one-dimensional issue of concern (Anastas, 2017).

More recently, other researchers have begun to challenge the traditional discourse around teen pregnancy, presenting it rather as a product of structural and systemic inequalities (Healthy Teen Network, 2017), which aligns with Kelly (1996) third narrative - *the wrong society* . This perspective argues that poverty and the marginalization of minority communities, not an individual's age, are the drivers of worse health outcomes (Anastas, 2017; Bonell, 2004; Koffman, 2012). The last narrative (the stigma is wrong) leads from an empowerment angle driven by teen parent voices and experiences. This approach focuses on de-stigmatization and respecting adolescents' reproductive choices regardless of what they decide. However, limited efforts focused on adolescent sexual and reproductive health have committed to this approach. Thus, there is a need for a shift in how adolescent reproductive behaviors and decisions are perceived, supported, and framed in public health research. Viewing teen pregnancy as a social phenomenon rather than a problem allows public health professionals to cater programs and policies to meet the actual needs of today's young people on multiple levels.

2.3 Adolescent Pregnancy Intentions

2.3.1 Unintended Pregnancy in the United States

An unintended pregnancy is often defined as a pregnancy that is unwanted or mistimed (Santelli et al., 2003). Eighty percent of pregnancies to U.S. adolescents and young adults 15 to 19 years old are considered unintended. Finer (2010) reported that adolescent girls 15-17 and 18-19 had the highest unintended pregnancy rates in comparison to other age groups (146 and 167 per 1000, respectively). In tandem with the decline of teen pregnancy, unintended pregnancies have also declined, which is presumed to be related to the increase in family planning services available to adolescents and later sexual debut (Kost et al., 2017). Nonetheless, teen pregnancy rates are still considered high by public health officials and are

an indication that more is needed to be understood about adolescents' attitudes and decisions about their reproductive behaviors.

Several sociodemographic factors have been reported to be associated with higher incidence of unintended pregnancies, including being young, identifying as a racial minority, living in poverty, and living in an urban or rural environment (Kost & Maddow-Zimet, 2016; Kost et al., 2017). Unintended pregnancy rates decline with age, with adolescents 15 to 19 years old reporting the highest rates (Finer, 2010). Racial disparities persist even in states or counties where teen pregnancy and birth rates have steadily declined over time (Romero et al., 2016). Minority adolescents or those from socially disadvantaged backgrounds are shown to disproportionately report an unintended pregnancy in comparison to White adolescents or those from more affluent, educated backgrounds (Finer, 2010; Finer & Zolna, 2011; Finer & Zolna, 2014). Poor adolescent girls and women are nearly five times more likely to experience an unintended pregnancy (Finer & Zolna, 2014; Martin et al., 2018), demonstrating a need to better understand their reproductive options, decisions and behaviors. Geographically, adolescents living in U.S. southern states continue to have the highest unintended pregnancy and birth rates (Kost & Maddow-Zimet, 2016; Kost et al., 2017). Furthermore, the context in which people live and work makes a difference on their reproductive health; young women who reported not feeling safe in their neighborhoods were 28% more likely to report an unintended pregnancy (Uscher-Pines & Nelson, 2010).

The negative consequences of an unintended pregnancy have been at the forefront of fertility research. For example, an unintended pregnancy is considered high risk due to its association with adverse outcomes for both mother and child. Unintended pregnancy has been associated with increased exposure to poor nutrition, inconsistent prenatal care, mental health issues, and having a low birth weight infant (Yazdkhasti et al., 2015). For adolescents, an unintended pregnancy is linked to academic failure, dropping out of school, and working low-income jobs (Penman-Aguilar, Carter, Snead, & Kourtis, 2013). Adolescents experiencing an unintended pregnancy are also more likely to experience psychological distress, suicide,

and seek unsafe abortion care (Nelson & Lepore, 2013). There is an association between unintended pregnancies and domestic violence, indicating that women with unintended pregnancies may experience more hostile living environments (Holliday et al., 2018). As a result, children from unintended pregnancies may be at greater risk for psychological and developmental delays during childhood. Data from the Fragile Families and Child Well-being study demonstrated that the report of an unintended pregnancy from either a mother or father preceded child maltreatment behaviors (Guterman, 2015). Furthermore, social scientists have reported the immense health costs associated with unintended pregnancies on society. In 2010, more than half of unintended pregnancies resulting in births were paid for using public insurance programs, costing taxpayers upwards of $21 billion to provide medical care to the child until the age of 5 (Sonfield & Kost, 2013). It is estimated that if all unintended pregnancies were prevented through access to family planning services, the federal and state governments would have saved nearly $15.5 billion in 2010 (Sonfield & Kost, 2013).

Despite these findings, there are mixed results regarding the consequences of unintended pregnancies (Kost & Lindberg, 2015), with some research demonstrating methodological limitations and weak evidence. While strategies to increase access to contraception and comprehensive sexual education are essential components to preventing unintended pregnancies, there is still a need to better understand young people's motivations and perspectives of pregnancy. By understanding more deeply which pregnancies are truly "unintended" and detrimental to the well-being of adolescents, researchers will be able to better prioritize and tailor efforts to specific populations and address their risk factors. Such information would be useful in developing programs, services, and policies that align with the current sexual health needs of young people.

2.3.2 Challenges with Pregnancy Intention as a Construct

The formation of pregnancy intentions for adolescents is an already complex phenomenon; however, it is further complicated by how intentions have been measured and analyzed in current research.

The challenges of measuring pregnancy intention have been a discourse among researchers for years (Klerman, 2000; Potter et al., 2019; Santelli et al., 2009); however there continues to lack a consensus on how to capture the construct in surveys and research. Table 2.1 provides a brief overview of the variability in the measurement and application of pregnancy intentions in research; however this list not exhaustive of all the measures.

The three main challenges with pregnancy intention measurement are: (1) *defining the construct*, (2) *stability of the construct*, and (3) *lack of male reports on their intentions*. Considering these issues, it is possible that current measures of pregnancy intention may be overestimating rates or making inaccurate inferences to adverse outcomes (Gomez, Arteaga, Villasenor, Arcara, & Freihart, 2019; Potter et al., 2019). The following sections will focus on each challenge.

Table 2.1. List of Terms Related to Pregnancy Intentions

Labeled Term	**Description**	**Categorization**	**Asked when?**	**Source**
Pregnancy intention	(1) Wantedness: *Did you want to have a baby any time in the future* (2) Timing: *Would say you became pregnant to soon, at about the right time or later then you wanted*	- Unwanted - Mistimed - Intended - Unintended - Intended - Uncertain	Retrospective & Prospective	National Survey of Family Growth (NSFG)
	Thinking back to just before you got pregnant, how did you feel about becoming pregnant?	- Unwanted (not wanted now or ever) - Mistimed (wanted sooner or later) - Intended (wanted now)	Retrospective	Pregnancy Risk Assessment Monitoring System (PRAMS)
	(1) Planning: '*I wanted to get pregnant*', '*I have been trying to get pregnant for a while*', and '*I have been hoping to get pregnant*' (2) Emotional readiness: *I am ready to have a baby now*	- Planned & emotionally ready - Unplanned & emotionally ready - Unplanned & discrepant emotional readiness - Unplanned & not emotionally ready	Retrospective	Phipps and Nunes (2012)

	(1) Currently, are you pregnant, trying to get pregnant, trying not to get pregnant, or are you okay either way?	- Trying to get pregnant - Not trying to get pregnant - Okay either way	Prospective	National Survey of Fertility Barriers (NSFB)
	(1) Pregnancy desire (2) Pregnancy avoidance	- Pro-natalist - Indifferent - Ambivalent - Anti-conception	Prospective	Moreau et al. (2013)
	(1) Trying to get pregnant (2) Importance of avoiding pregnancy (3) Expected happiness	- Planned - In between/not trying - Unplanned	Prospective	Arteaga, Caton, and Gomez (2019)
	(1) Wantedness*: Do you want to get pregnant in the next 6mo?* (2) Happiness*: How happy would you be if you were to become pregnant in the next 6mo?*	- Unwanted vs. others - Unhappy vs. others	Prospective	Rocca, Doherty, Padian, Hubbard, and Minnis (2010)
	Measure of pregnancy desirability: (1) Happiness (2) Wantedness	- Unwanted +Unhappy = Unintended (vs. others)	Retrospective	Speizer et al. (2004)
Pregnancy readiness	(1) Marital status (2) Contraceptive method used (3) Partner intention agreement	- Ready - Ambivalent - Unready	Prospectively	Gaydos, Kramer, and Hogue (2010)
Pregnancy planning	Planning and intention used interchangeably (1) Timing: *'right time"* (2) Consistent contraceptive use (3) Wantedness: *'wanted a baby'* (4) Intention: '*intended to get pregnant'* (5) Discussion with partner about pregnancy (6) Health preparation: actions to improve health for pregnancy	- Unplanned - Ambivalent - Planned	Retrospective	London Measure of Unplanned Pregnancy (Barrett, Smith, & Wellings, 2004)
Pregnancy preference	Focused on the avoidance of a pregnancy (1) Cognitive preferences (2) Affective feelings/attitudes	Continuous measure, with highest score indicating greater desire to avoid a pregnancy	Prospective	Desire to Avoid Pregnancy Scale (Rocca, Ralph, Wilson,

	(3) Practical consequences			Gould, & Foster, 2019)
Prospective expectation	Measure of wantedness: *how many (more) children do you expect to have?*	- Prospectively wanted - Prospectively unwanted	Prospective	National Longitudinal Study of Youth 1997 (Rackin & Morgan, 2018)

Defining the Construct

The National Survey of Family Growth (NSFG) is the most commonly used dataset to report data on pregnancy intentions in the United States. Its frequency in collection and population level data provide a nationally representative outlook on the reproductive behaviors of U.S. adolescents and adults. Pregnancy Risk Assessment Monitoring System (PRAMS) and other large-scale surveys use different language in comparison to NSFG, but intentions are defined based on the same concepts of wantedness and timing. Women and men are retrospectively, when applicable, asked to recall their feelings prior to getting pregnant in answering the following two questions:

1. *Right before you became pregnant, did you yourself want to have a baby any time in the future?* (Wantedness)
2. *So, you would say you became pregnant to soon, at about the right time or later then you wanted?* (Timing)

Pregnancies that are classified as *unwanted* (did not want any children in the future) or *mistimed* (wanted more children in the future but did not want to be pregnant then) are defined as unintended. The NSFG measure provides a basic approach to capturing pregnancy intention, which is often reported as a binary outcome: intended or unintended, neglecting the other personal factors, experiences, and perspectives that might influence one's intentions (Kost & Zolna, 2019; Santelli et al., 2009). However, intention is a multidimensional construct that extends beyond timing and wantedness.

Few researchers have measured and reported pregnancy intentions on a spectrum that might be dependent on emotions, circumstances, morals, and culture (Aiken et al., 2016; Arteaga et al., 2019).

Evidence shows that reporting a baby as unwanted is deemed socially unacceptable in some cultures, resulting in unreliable measures of intention (Smith et al., 2016). A qualitative study among Latinx youth in Texas reported that a baby is considered a "blessing" and therefore would be perceived as positive, regardless if the teen felt unready to be a parent (Aiken et al., 2015). Therefore, to accurately identify an individual's intentions, it is necessary to capture the multiple factors, both direct and indirect, which might inform their perspectives.

Other studies have used constructs such as "pregnancy planning," "happiness," and "pregnancy readiness" as proxies for measuring intention; but there still lacks clarity on the comparability, sufficiency of the measures, and underlying definitions across the constructs used (Macutkiewicz & MacBeth, 2017; Paterno & Han, 2014). For example, attitudinal measures, like *pregnancy happiness* ("If you are pregnant now, how would you feel about it?") and behavioral measures, like *pregnancy planning* ("Had you and your partner planned this pregnancy?'') are often used interchangeably to capture intention despite variant understanding by both researchers and participants on their meaning (Barrett & Wellings, 2002). One study reported a 6 percentage point estimate difference in the prevalence of unintended pregnancy depending on the terms used in a survey (Moreau et al., 2014), signaling the importance of attending to construct definitions, presentations, and reporting in research.

In some cases, consistent contraceptive use is used as a proxy for pregnancy intention. However, there is often contradiction in individuals' behaviors and attitudinal position (Guzzo, Hayford, Lang, et al., 2019). Several studies have reported high contraceptive non-use despite adolescents reporting wanting to avoid a pregnancy (Crosby, Diclemente, Wingood, Davies, & Harrington, 2002; W. B. Miller, Barber, & Gatny, 2013). This disconnect is often described in the literature as reflecting ambivalence; however, this may not be a true reflection of adolescents' feelings. In a study with young couples (18-24 years) in the Bay Area focused on examining the utility and accuracy of prospective pregnancy intention measures by comparing results from a survey with qualitative interviews, researchers found that 78% of individuals' intentions were

misclassified as ambivalent. Rather than ambivalence, participants felt that pregnancy intentions, behaviors, and emotions were complex and played different roles in their overall perceptions of their own pregnancy intentions, which in turn affected their behaviors linked to contraceptive use (Gomez et al., 2019). The findings from the study highlighted the difficulty in capturing ambivalence, with participants reporting high importance in avoiding a pregnancy but simultaneously stating not feeling unhappy if they were to get pregnant. Moreover, other research has shown that adolescents' ambivalent feelings toward pregnancy and contraception are marked by their perceived future orientations, perceived partner's intention, and cultural norms (Alexander et al., 2019; Kraft et al., 2010; Macutkiewicz & MacBeth, 2017). Hence, if contraceptive use is the only dimension of intention captured, it lends to a greater likelihood of misclassification. A broader measure of intention might be more appropriate and accurate in reflecting various viewpoints as it pertains to reproductive health. The ability to more accurately capture intentions, therefore, can better identify pregnancies that are most detrimental to an individual's health over time (Potter et al., 2019).

Other studies have sought to identify misclassifications of pregnancy intentions. For example, when two measures of pregnancy readiness were tested as a measure of intentions against each other, there was 55% disagreement in how women were classified (Brunner Huber, Lyerly, Farley, & Alkhazraji, 2013). The variability in how the construct of pregnancy readiness was developed and categorized were identified as limitations of the measure in accurately and precisely capturing intentions (Brunner Huber et al., 2013). To address these limitations, Gomez et al. (2019) and Aiken et al. (2016) have proposed pregnancy acceptability as a more appropriate and alternative measure of intentions. The measure is specific to capturing adolescents' views of pregnancy and reproductive decisions. It also challenges the concept of pregnancy planning and other terms that imply a clear and always well-thought decision-making process. However, there are no current scales that incorporate or quantify the construct and link it to health outcomes, which limits our ability to determine the reliability and validity of the construct.

Attempts have been made to address the limited definition and use of the traditional measure of pregnancy intention. A 2-year longitudinal study among African American young women aged 15 to 25 explored new strategies to categorize prospective pregnancy intentions using a qualitative method of sorting statements reflecting attitudes and preferences of a future pregnancy (Schwartz, Peacock, McRae, Seymour, & Gilliam, 2010). Using by-person factor analysis, six factors were identified: (1) seeking now, (2) avoiding forever, (3) ambivalence, low reproductive control, (4) planning for the future, (5) avoiding, family influence, and (6) partner avoiding, high reproductive control. Adolescent girls were more likely than young adult women to be influenced by family and the emotional aspects of a future pregnancy. The categories reflect the multiple factors that contribute to how an individual, but particularly young people, conceptualize and view future pregnancies. In a longitudinal study with young women 18-24 in Michigan, it was reported that pregnancy desires fall into four quadrants: pronatal, antinatal, ambivalence, and indifference tested by using a combination of positive and negative desires (W. B. Miller et al., 2013). The quadrants were defined as:

- Pronatal: high on positive childbearing desires, low on negative childbearing desires
- Antinatal: low on positive childbearing desires, high on negative childbearing desires
- Ambivalence: high on both positive and negative childbearing desires
- Indifferent: low on both positive and negative childbearing desires

With these steps toward a more expansive definition and measurement of pregnancy intentions, more valid measurements can be used to infer and translate findings into policies, strategies, and programs that best support the reproductive health choices and behaviors of adolescents.

Stability of the Construct

Current measures fail to capture how pregnancy intentions can and do change (Aiken & Potter, 2013; R. K. Jones et al., 2015; Moreau et al., 2013; Rocca et al., 2010). There is variability in when respondents

are asked about their pregnancy intentions, both in small studies and large-scale surveys, making pregnancy intentions person and time dependent. In retrospective studies, women and men are asked to recall their feelings about a past or most recent pregnancy. This introduces bias, specifically the *ex pos*t rationalization of intention, which suggests that over time a person begins to rationalize their thoughts and emotions toward a situation and report them differently from their original sentiments at the time of the event (Westoff & Ryder, 1977). Studies demonstrate that women's feelings about a pregnancy become more positive over time and might be dependent on the outcome of the pregnancy (Bankole & Westoff, 1998; Joyce, Kaestner, & Korenman, 2000) therefore reporting a pregnancy as intended instead of unintended.

While using prospective measures reduces this bias, there are still challenges. Longitudinal studies that have followed women before and after a pregnancy have reported discordance in pregnancy intentions (Rackin & Morgan, 2018). This conflict of pregnancy intentions being situational is most relevant for adolescents. During the adolescent developmental period, constant, significant physical, emotional and social changes occur (Albert, Chein, & Steinberg, 2013; Van Duijvenvoorde & Crone, 2013). A specific example is the transience of dating and sexual relationships for adolescents (Manning, Longmore, Copp, & Giordano, 2014). As these relationships change, it is likely that pregnancy intentions are also impacted. One solution may be to measure intentions more frequently, especially at critical points in an individual's life to better identify and tailor health services to those at greatest risk for an unintended pregnancy (Kavanaugh & Schwarz, 2009; Schwartz et al., 2010).

Lack of Male Reports on Intentions

Most measures of pregnancy intention overlook the perspectives of men, despite their influence on women's own intentions, contraceptive use, and perceptions of pregnancy (Alexander et al., 2019; Kraft et al., 2010; Warren B. Miller, Severy, & David, 2004). In a systematic review between 2010 and 2017, only 38 studies addressed the pregnancy attitudes and intentions among male participants (Kane et al., 2019).

Mostly reported in qualitative research, young men, particularly those who are low-income, have a greater desire and positive view of pregnancy than their female peers (Fedorowicz, Hellerstedt, Schreiner, & Bolland, 2014; Kane et al., 2019). In a study among young African American fathers in Birmingham, AL, the majority reported the most recent pregnancy as unintended; however, they also expressed favorable attitudes toward early childbearing (Davies et al., 2004). It was also reported by adolescent males that adolescent girls had more control over when a pregnancy occurred and whether contraceptives were used, which concurs with other findings that show men often report lacking reproductive agency (Hamm et al., 2019).

In some studies, men's intentions are reported by the female partner (Lindberg & Kost, 2014). Qualitative research has demonstrated women inaccurately perceive their partner's intentions (Lewin, Mitchell, Hodgkinson, Gilmore, & Beers, 2014). Of fathers who expressed wanting a pregnancy, 60% of partners perceived their intentions as ambivalent or unwanted. Among fathers who expressed not wanting a pregnancy, 36% of their partners perceived they wanted a pregnancy. The dearth of primary data collection among men, particularly adolescent males, limits our ability to understand the dynamics between partners in supporting individual pregnancy intentions as individuals and a couple.

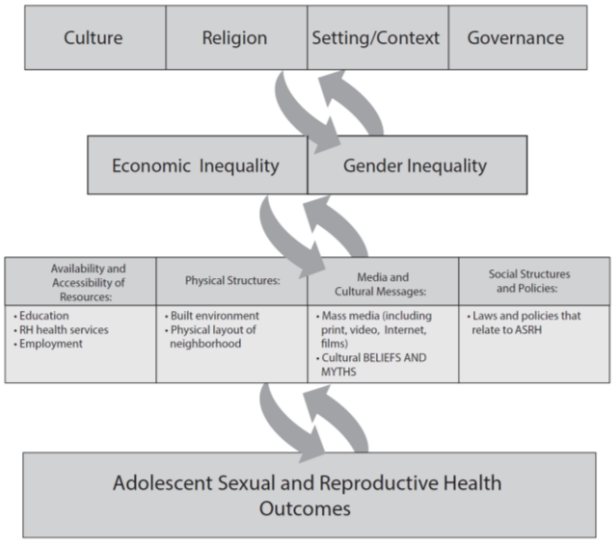
The lack of young men's perspectives on pregnancy makes it difficult to clearly understand their role and contribution to when a pregnancy occurs or is avoided. Prior research tends to examine men's intentions among those who are already fathers or reported getting someone pregnant. The intentions of men who have not experienced a pregnancy are missing in the literature, which may be integral in framing how family planning services or parenthood is presented to both adolescent and adult males (Waller & Bitler, 2008). Pregnancy intention is not solely a women's issue (Lohan et al., 2010). Therefore, more inclusive reports from both young men and women will provide an accurate portrayal of intentions and its association with other health outcomes.

2.3.3 The Role of Social Context on Adolescent Reproductive Health

Adolescents are heavily influenced by social, external factors from interpersonal, community and institutional levels (Ballard & Syme, 2016; Fantasia, 2011; Ritterman Weintraub, Fernald, Adler, Bertozzi, & Syme, 2015). Theoretical frameworks explain that adolescents develop perspectives and meaning about sexual activity, pregnancy and fertility via the bi-directional flow of influence from their social networks (peers, partners and family), community, and society at large (Charmaraman & McKamey, 2011; Christopher, 2000; Viner et al., 2012). Sommer and Mmari (2015) illustrated how structural and environmental factors shape adolescent sexual and reproductive health outcomes, building on the social determinants of health (see Figure 2.1). The dynamic and bidirectional influence across multiple levels of culture, religion, governance, and economics demonstrate how changes in any one factor can be impactful in framing how adolescents perceive or behave regarding their reproductive health.

Empirical research has suggested gender norms informed by religion and culture that underscore motherhood, in particular, as a moral compass have shaped both individual and institutional-level approaches to adolescent reproductive health care and education (Akella & Jordan, 2014; Kornreich, Hearn, Rodriguez, & O'Sullivan, 2003; Sterling & Sadler, 2009). However, studies have mainly focused on the individual-level behaviors (i.e., early sexual initiation, contraceptive use), rather than acknowledging the complexity of social influences that inform and drive adolescent behavior (Challa et al., 2018; Sommer & Mmari, 2015).

Figure 2.1 Structural and Environmental Factors on Adolescent Sexual and Reproductive Health



The work of Kathryn Edin has focused specifically on understanding how systemic and institutional disadvantages impact the reproductive health decisions of adolescents, particularly those who are the most vulnerable. For some minority, low-income adolescents, pregnancy serves as a means for stability, motivation, and cohesion, contrary to their often bleak and disadvantaged daily circumstances (Augustine, Nelson, & Edin, 2009; Edin & Kefalas, 2005). Similarly, a cross-sectional study with predominately Black and poor adolescents reported a positive association between hopelessness and pregnancy attempt and desire (Fedorowicz et al., 2014). Edin and Kefalas (2005) state that addressing the systemic disparities that disproportionately affect minority and poor adolescents are critical to improving and supporting the reproductive well-being of these young people. Thus, future research and policy require a greater understanding of pregnancy and its potential of being viewed as an opportunity in social environments where resources are limited for social and financial advancement.

In addition to social environments, proximal factors such family dynamics and connectedness, social norms, and peer relationships have direct and indirect links to adolescents' reproductive health decisions and behaviors (Alexander et al., 2019; Secor-Turner, Sieving, & Garwick, 2011). Parent-child communication and parental attitudes about sex have been found to be strongly associated with adolescents' own sexual and reproductive health attitudes (Henrich, Brookmeyer, Shrier, & Shahar, 2005; B. C. Miller, 2002; Werner-

Wilson, 1998). Data from the National Longitudinal Study of Adolescent Health (Add Health) with sexually active African American adolescents found supportive friendships and parent connectedness interacted to predict a 14% less likelihood of engaging in risky sexual behaviors, such as condomless sex, sex under the influence, transactional sex and early sex initiation (Henrich et al., 2005). These findings persisted only in the presence of stable, positive friendships with peers, illustrating the importance of both parents and peers in adolescents' sexual and reproductive behaviors. Similar findings were reported in another study focused on young Black men, where perceived parental monitoring moderated the relationship between perceived peer norms and engagement in sexual risk behaviors such as condomless vaginal sex, number of sexual partners in the past 2 months and lifetime sexual partners (J. Jones, Salazar, & Crosby, 2017). The effect of peer norms that endorsed riskier behaviors on number of sexual partners were lower for participants with higher levels of perceived parental monitoring.

Like families, partners play a significant role in reproductive health decision-making, including when and if contraceptives are used, pregnancy intendedness, pregnancy outcomes, and overall perspectives of pregnancy (Heavey, Moysich, Hyland, Druschel, & Sill, 2008; Lalas, Garbers, Gold, Allegrante, & Bell, 2020; Manlove & Terry-Humen, 2007). Earlier work has discussed the power dynamics present in adolescent dating and romantic relationships, which often disempower adolescent girls in making decisions that are in their best interest or of their own volition (E. Miller et al., 2007), thus, introducing coercive behaviors around sexual and reproductive health (Banister, Jakubec, & Stein, 2003). By nature, gendered power dynamics are implemented sometimes unknowingly by adolescent males through reinforcements of double standards, traditional masculinity, and patriarchy. However, it is important to note that the influence from partners is not gender-specific; adolescent males also have reported that their female partners' desires, motivations and behaviors impact on their own reproductive experiences (Davies et al., 2004; Hamm et al., 2019; Ray, Harcey, McQuillan, & Greil, 2020).

2.4 Using a Reproductive Justice Lens to Approach Adolescent Pregnancy Intentions

Reproductive justice, a term and analytical framework coined by twelve African American women in 1994, is an intersection between reproductive rights and social justice, where individuals, particularly the most vulnerable, are granted autonomy over their reproductive choices, decisions, and behaviors (Ross, 2017). While the framework began as a social justice movement to elevate the voices and experiences of Black women, its tenets can be applied to all vulnerable populations, including youth. Reproductive justice is based on three related sets of human rights: (1) *the right to have a child under the conditions of one's choosing*; (2) *the right not to have a child using birth control, abortion, or abstinence*; and (3) *the right to parent children in safe and healthy environments free from violence by individuals or the state*. The concept highlights the range of liberties that all individuals, not just girls and women, should have over their reproductive choices. A local non-profit in Atlanta, GA, *SisterLove, Inc.*, eloquently applies a person-centered approach to reproductive justice describing it as:

> *conditions of liberation that will exist when all people have the power and resources necessary to make their own decisions about their bodies, gender, sexuality, relationships and families and communities to create and choose their families and to reproduce their communities with dignity, self-determination and genuine support.*

Per this definition, reproductive justice is not just about increasing access to abortion care, but rather permitting individuals to exert agency over their bodies and family life decisions.

A reproductive justice lens accounts for the intersectionality of adolescent identities, life circumstances, and experiences, and calls for them to be acknowledged and supported when exploring their reproductive decisions. This approach does not remove culpability from the individual, but rather seeks to understand adolescents' decisions to have or not have children earlier in the life course as a product of their social, political, and historical context (Hans & White, 2019). A reproductive justice lens demands that adolescents are viewed with respect and approached from a strengths-based perspective, with the ability

to decide what is best for their lives, contrary to the traditional discourse around teen childbearing. In 2019, the federal teen pregnancy prevention campaign, Power to Decide, used a reproductive justice lens as the backbone for its messaging. The campaign realized that the promotion of access to effective contraceptives supported only one of the reproductive human rights. In response to this shortcoming, the campaign shifted its objectives to ensure adolescents "have the power to decide if, when, and under what circumstance to get pregnant and have a child" (Power to Decide, 2019). Therefore, this dissertation applied a reproductive justice lens to expand the literature on how adolescent reproductive intentions and behaviors are reflected and captured in research, thus promoting a more supportive narrative of young people.

Recent research exploring the complexity of pregnancy intentions from an adolescent perspective is limited. A systematic review of qualitative literature from 1995 to 2013 identified 18 articles that focused on pregnancy intentions among adolescents, 14 of which were based in the U.S. (Macutkiewicz & MacBeth, 2017). The review identified six salient themes around intended adolescent pregnancies and emphasized the importance of developing reliable tools to measure youth perceptions on pregnancy, the need for greater understanding of the characteristics or contexts that inform their attitudes toward early childbearing, and the need for more research on how youth, practitioners, researchers understand and apply intentions as a construct. Unfortunately, adolescent males, who may have different perspectives, were excluded from the review.

Sociologists also argue that adolescents' attitudes and conceptualization of pregnancy have been narrowed by the "problematic" discourse around teen pregnancy (Aiken et al., 2016; Guzzo, Hayford, & Lang, 2019). Thus, future work is needed to understand how adolescents think about the meaning of having and raising children as they make decisions about future pregnancies, along with the multiple domains that influence their daily life decisions, including those about fertility. While several studies focus on the factors to prevent unintended pregnancy, few acknowledge the range of reproductive choices available to adolescents and link it with other behaviors or outcomes. Thus, using a reproductive justice lens permits us

to reframe and explore young people's conceptualization of pregnancy, their intentions and childrearing in a manner that has been limited in previous research.

2.5 Conceptual Framework

Pregnancy intention is a complex construct, which has often been explained using social theories such as the Theory of Planned Behavior (TPB), where intentions are consciously developed and formed based on beliefs, attitudes, subjective norms and perceived behavioral control (Ajzen, 1991). In addition, TPB incorporates the social influence of others on an individual's intentions and behaviors. However, there are inherent challenges in its assumptions as it relates to better understanding and conceptualizing reproductive behaviors (Bachrach & Morgan, 2013).

Rackin and Bachrach (2016) highlight three concerns with TPB assumptions: (1) fertility is not based on one behavior, but rather multiple behaviors that can be influenced by direct or indirect decision-making processes; (2) not all behaviors are planned or the result of conscious intentions; and (3) fertility is not static, but rather an experience that is time and context dependent. The concept of pregnancy planning is not feasible for everyone, particularly adolescents (Mumford, Sapra, King, Louis, & Buck Louis, 2016). Adolescence is marked by physical, emotional, and social changes, which inform young people's views and behaviors toward pregnancy (Ballonoff Suleiman, Johnson, Shirtcliff, & Galvan, 2015). How pregnancy intentions among adolescents are captured and measured should account for the differences in cognitive development and heavy influence of the social context. TPB is best suited for explaining a concept or decision-making process that is simple and directly related to the behavior of interest. Therefore, researchers have called for a revised conceptual model that better captures the nuances of reproductive behaviors (Barber, 2001; Morgan & Bachrach, 2011).

2.5.1 Cognitive Social Model of Fertility Intention

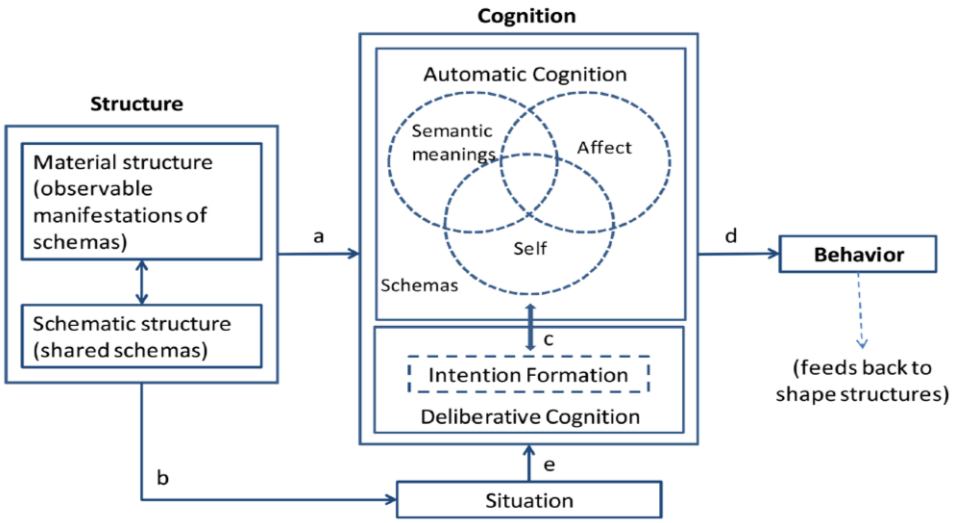
This dissertation is framed using the Cognitive Social Model of Fertility Intentions. The cognitive social model of fertility intentions is rooted in dual foundations of cognitive science and social theory to understand how intentions are formed and influence behaviors related to fertility (Figure 2.2), taking a step further than the Theory of Planned Behavior. Bachrach and Morgan (2013) define intentions as a desire for an outcome and the belief that certain actions will yield the outcome. However, the model acknowledges that behaviors are not always preceded by deliberate intention formation or clear intentions. Using cognitive science, the model incorporates three concepts: (1) cognition depends on automatic and deliberate processes in the brain; (2) the brain creates mental representations, or schemas of objects, events and concepts, and (3) schemas are connected to affective states. The automatic processes in the brain create schemas that are interconnected, which in turn are linked to semantic meanings and feelings for an individual. Deliberate processes complement the automatic process to incorporate reasoning or regulation, which further inform semantic meaning or emotions toward the schema.

Like TPB, the cognitive social model of fertility intentions acknowledges the influence of a person's social environment and context on their schemas. Social domains offer observable and perceived representations of a schema, which frames how a person stores and acts on the information. For example, teen parenthood as a schema might be perceived as unacceptable within a community through the lack of support services available for teen parents, teens being kicked out of their homes after disclosure of a pregnancy, or a strong push toward abortion as the only option. These observable reactions to a teen pregnancy, in addition to increased stigma of current teen parents, incites a schema for a young person in that community to know what is socially unacceptable, which would inform their own personal schema around teen parenthood.

Based on this information, the model assumes the following about intentions (Bachrach & Morgan, 2013):

- Intentions are preceded and influenced by social factors
- Intentions are formed when the brain consciously ties a schema for an outcome and its actionable steps toward self, which is bi-directional between automatic and deliberative cognition, thus motivating a behavior
- Behaviors can occur without intention formation or a deliberative process, but rather strictly from an automatic process that are based an individual's mental representations
- When intentions are formed, they influence not only the behavior of interest but any other schema directly or indirectly related
- Intentions are formed when a situation or circumstance requires it

Figure 2.2 The Cognitive Social Model for Fertility Intentions



2.5.2 Applying the Cognitive Social Model of Fertility Intentions to Adolescent Pregnancy Intentions

In this dissertation, the cognitive social model of fertility intentions is applied to understand how adolescents conceptualize teen pregnancy as a schema and its link to their pregnancy intentions and reproductive behaviors. Figure 2.3 is a visual representation of the adapted model as designed by Bachrach and Morgan. The bolded red boxes demonstrate the components of the model that were tested for this dissertation.

The model precedes with social influences, which are multi-level. Starting with institutional (political climate, access to services and comprehensive sexual education) to interpersonal-related (parent-child communication, partner dynamics, social norms) factors that influence a young person's mental representation of teen pregnancy. Bronfenbrenner's socio-ecological model guides our knowledge that adolescents do not live or develop in silos (Pulerwitz et al., 2019). Thus, it is imperative to understanding how social influences contribute to whether teen pregnancy is perceived positively or negatively for a young person. Extensive research demonstrates the influence of family structure, peer norms, cultural norms, and social class on adolescents' sexual behaviors (Akella & Jordan, 2014; Alexander et al., 2019; Maness, Buhi, Daley, Baldwin, & Kromrey, 2016; Plourde, Fischer, Cunningham, Brady, & McCarraher, 2016). Thus, it is plausible to expect that these factors would influence how schemas are developed (Svanemyr, Amin, Robles, & Greene, 2015). While the research is available to support these claims, very few delve deeper to include the perspectives and experiences of adolescents.

Interpersonal influences are intended to focus on the relational features in an adolescent's life (i.e., family relationships, partner dynamics and cultural norms) that frame how, what, and when a schema about teen pregnancy is formed. The determination for what is considered acceptable is driven by the competing priorities set by their family and community norms. Fielding and Schaff (2004) explored how social factors influenced young women's labeling of their pregnancy and decision to have a medical abortion. Findings

demonstrated that social expectation, culture, religion and morality were all heavily influential in their perceptions and decisions. Aiken et al. (2015) further cement the importance of social influences on pregnancy intentions among Latinx girls and women, who explain the social expectation of viewing a pregnancy as a celebratory life event being instilled since childhood. The collective data on the linkage between social influences provides greater insight to understanding adolescent perceptions and behaviors.

The cognitive component of the model acknowledges the unconscious (automatic) and rational (deliberative) processes that occur, which are particularly sensitive areas of brain development for adolescents (Ballonoff Suleiman et al., 2015; Crone & Dahl, 2012; Van Duijvenvoorde & Crone, 2013). Adolescence is marked by increased sensation-seeking, fluctuating emotional states and identity formation juxtaposed with limited capacity in executive functioning and judgment. Research has demonstrated two approaches to decision making for adolescents: (1) wait and see and (2) just in case (Free, Lee, & Ogden, 2002; Williamson, Buston, & Sweeting, 2009). The 'wait and see' approach is driven by risks where an individual concedes to a fatalist outcome. For example, an adolescent who does not take preventive measures to avoid pregnancy or a sexually transmitted infection by using a condom, believes there is the potential for the risk not to occur. Concepts like optimism bias, where an adolescent perceives they are less likely to experience negative consequences from an action, might explain their decision-making (Chapin, 2010).

The 'just in case' approach is risk adverse and takes the precautions to protect oneself from harm or consequence. Using this approach would be ideal for adolescents as they make decisions around contraceptive use; however, it only becomes more consistently used as an adolescent matures and transitions into adulthood. Therefore, the deemed irrational nature of adolescent reproductive behaviors are not the results of faulty decisions but rather the inherent absence of decision-making (Herrman, 2007). In alignment with prior research which reports that adolescent decisions are informed by influences beyond

themselves (Albert et al., 2013), there is an opportunity to explore more closely how these developmental processes implicate adolescents' prospective pregnancy intentions and behaviors.

During the critical stage of adolescence, when deliberative cognition is under-developed, behaviors become heavily dependent on automatic cognition. The schema of teen pregnancy is formed based on an adolescent's affect, self- perception, and their personal understanding of what it means to be pregnant as a teen. The emotional states of whether an adolescent wants a child (wantedness), feels ready to be a parent (readiness), or is happy about a future pregnancy (happiness) are interconnected in determining how a schema about teen pregnancy is formed unconsciously (Santelli et al., 2009; Stanford, Hobbs, Jameson, DeWitt, & Fischer, 2000). In addition, an adolescent's self-perception, which is inclusive of their perceived risk of being/getting someone pregnant, future life plans, and self-efficacy to be a teen parent, all contribute to how an adolescent conceptualizes a pregnancy.

However, few studies have been able to capture the complexity and dimensionality of these reproductive attitudes concurrently (Santelli et al., 2009). While the deliberative cognitive process of forming intentions cannot occur without a schema from the automatic process, a behavior can occur directly from the automatic process, which are both marked by the dotted arrows in the model. Furthermore, the cognitive process becomes more pronounced and complicated within the context of a situation (i.e., entering into a sexual and/or romantic relationship). The dissertation sought to explore the complex cognitive processes and social influences that drive the formation of pregnancy intentions among adolescents.

2.6 Study Rationale

The existing literature presents four research opportunities. First, limited research has explored the pregnancy intentions of adolescents ages 15 to 19 years old using a youth-centered approach that actively engage, acknowledge, and discuss adolescents' diverse ideas, experiences and social context. Contrarily, a

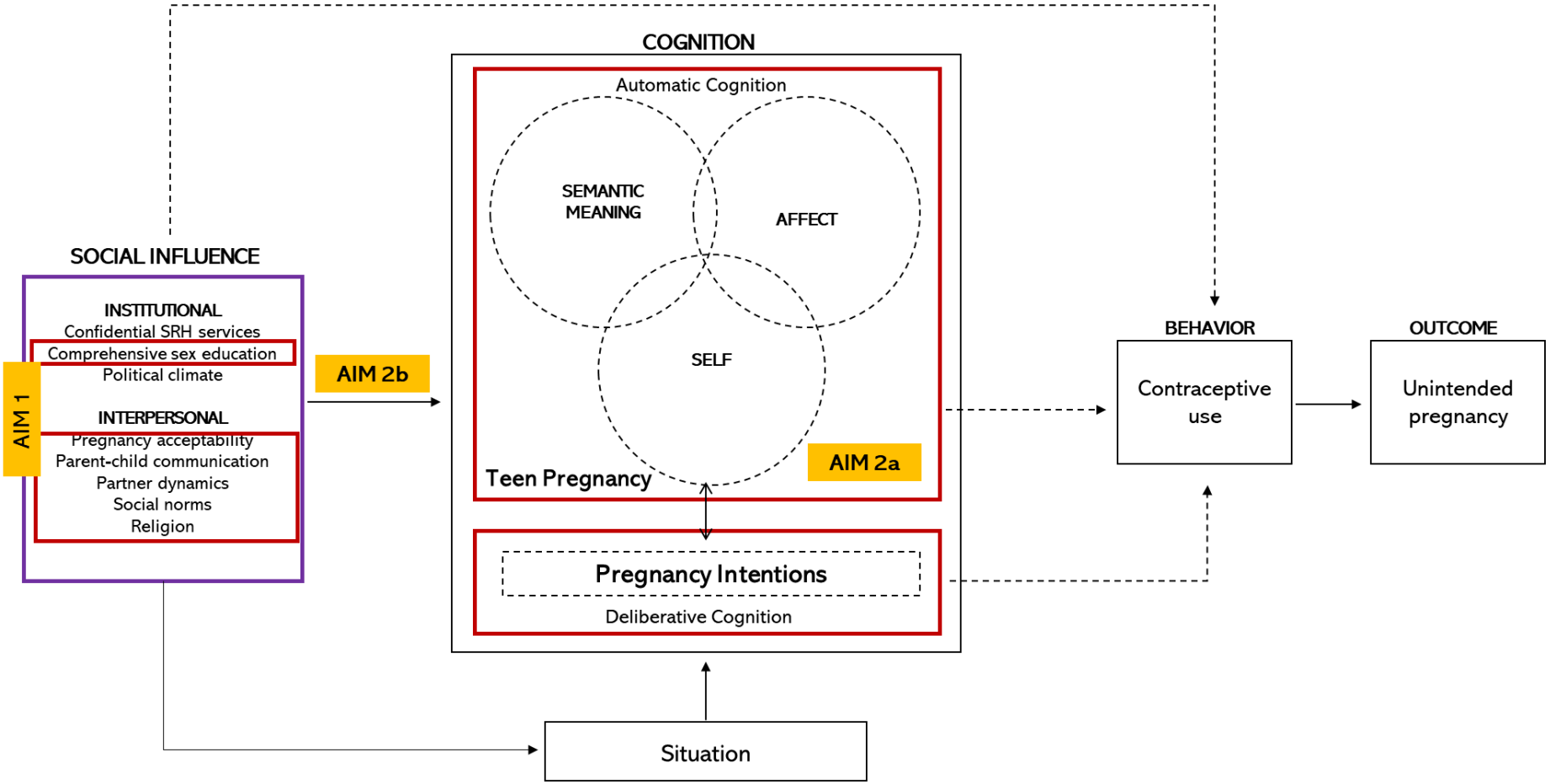
vast majority of research has been driven by adult perspectives on what is perceived of adolescent reproductive health decisions and behaviors. There is a need to better understand how young people view and conceptualize pregnancy and more fully explore intendedness with them.

Secondly, a youth-centered approach to exploring adolescents' perspectives and intentions around pregnancy may undercover additional strategies to address disparities in reproductive health among adolescents. Specifically, pregnancy intentions, which encompass an individual's desires, perceptions, emotions, planning and timing of when to have children, may serve as a catalyst to understanding why disparities continue to persist for teen pregnancy and birth rates in the U.S. (Lau, Lin, & Flores, 2014). These racial disparities support the need to explore and understand the motivations and context that inform adolescents' reproductive health decisions. A reproductive justice lens supports the notion that individuals, regardless of age, should have reproductive autonomy (Ross, 2017). However, the scope of how adolescents conceptualize and perceive pregnancy as well as how this information may relate and contribute to racial disparities are limited. Thus, researchers and practitioners have very few strategies that span and support the range in adolescent reproductive decision making.

Thirdly, limited research has focused on adolescent males and their reproductive attitudes, perceptions and intentions (Kane et al., 2019; Lohan et al., 2010, 2011). Sexual relationships and reproductive decisions do not occur independently of social context; therefore, more inclusive reports from both adolescent males and females may create opportunities to better understand motivations and ways to support young people in achieving their reproductive health goals. Lastly, there lacks consensus on how best to measure and capture the multidimensionality of pregnancy intentions. A novel approach to capturing the complexity of pregnancy intentions will create opportunities for clinicians and health educators to accurately predict, address and target messages, programs and interventions that align with adolescents' reproductive life plan. This dissertation contributes to the literature by expanding the lens in which adolescents' perspectives of pregnancy are studied, including the exploration of contextual factors

and characteristics that frame how pregnancy intentions are conceptualized and developed among U.S. adolescents.

Figure 2.3 Adapted conceptual framework using the Cognitive Social Model of Fertility Intention



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CHAPTER THREE

Research Design and Methods

3.1 Overview

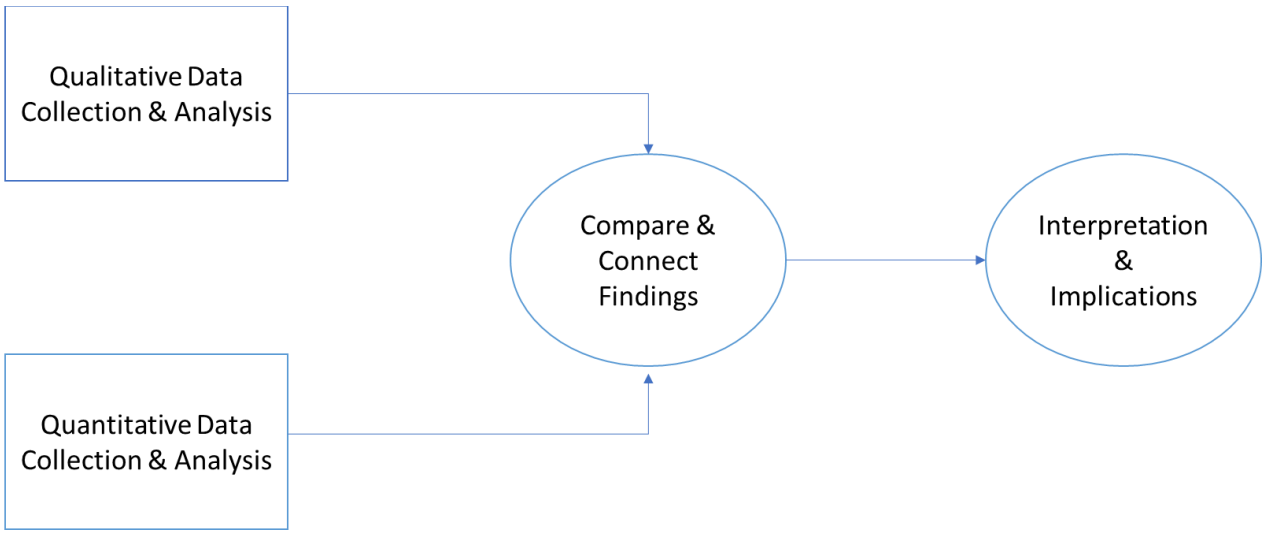
This chapter describes the research design and study methods used to address the two aims related to pregnancy intentions for adolescents. It begins with a description of the study design, followed by the qualitative and quantitative methods used to separately address each of the aims. For each methodology, the data source, variables of interest and analytic approach are described. Lastly, ethical concerns related to the study design are explained and addressed.

3.2 Study Design

The dissertation used a convergent, mixed method design, where the findings were validated based on the quantitative and qualitative data sources. A convergent design involves the collection and analysis of both data types separately yet simultaneously, followed by a side-by-side comparison of the results (Creswell & Plank, 2006). Both data types were used to inform each other and help to draw conclusions and implications for future practice. Using qualitative data from the Strategic Refresh project conducted in Baltimore, MD, aim 1 sought to explore how social influences drive adolescents' prospective pregnancy intentions. Aim 2 was based on quantitative data from the National Survey of Family Growth (NSFG), where pregnancy intention profiles were identified using latent class analysis and then used to assess the relationship between social factors and membership in one of the intention profiles.

The selection of a mixed methods study design is apt for the topic of interest because it allows the research question to be answered from different perspectives. A critical strength to this study design is the opportunity to include the lived experiences of adolescents. The qualitative data serves to illuminate and provide depth to the quantitative findings. The concept of triangulation, which compares results using multiple methods, has been applied to validate the findings and identify where convergence lies in understanding adolescents' pregnancy intentions. This method increases the credibility of the findings, thus helping to drive implications for future research and practice. Figure 3.1 is a depiction of the research process.

Figure 3.1 Mixed-method Convergent Study Design Process



3.3 Qualitative - Sampling, Data Collection & Analysis for Aim 1

Aim 1: To qualitatively, explore the social factors that influence how pregnancy intentions are conceptualized among adolescents 15 to 19 years in Baltimore, MD.

3.3.1 Data Source

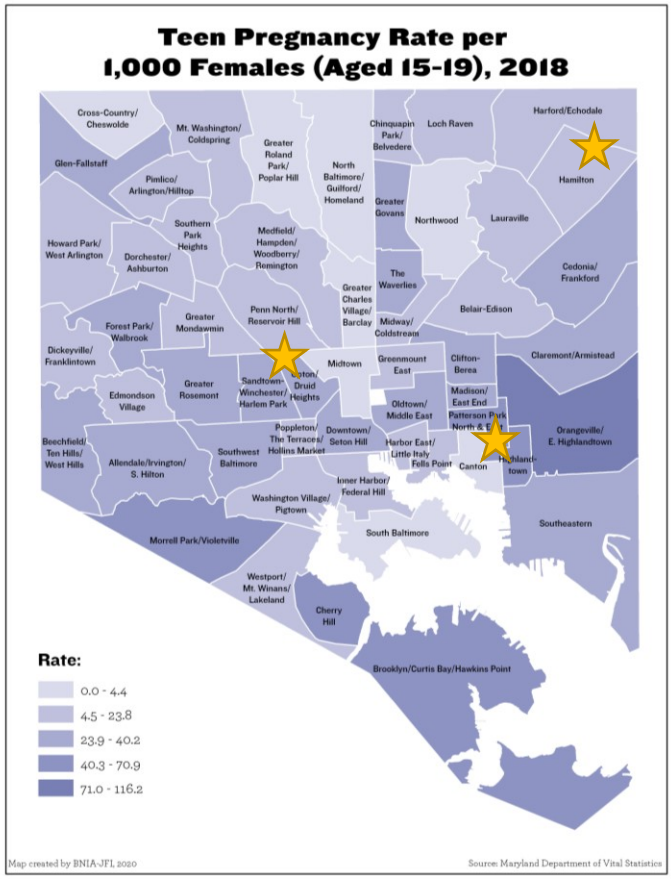
This current study is a secondary analysis of a qualitative study from a larger teen pregnancy prevention initiative in Baltimore, The Strategic Plan to Reduce Teen Births, a partnership with the Baltimore City Health Department, Healthy Teen Network, Johns Hopkins Urban Health Institute and the Center for Adolescent Health. The overall goal of the initiative was to reduce primary and secondary births to adolescent girls aged 20 years and under by 20% between 2009 and 2015. Thus, the initiative's three areas of focus were to (1) increase access to comprehensive sexual health education and contraceptive services for adolescents; (2) increase outreach to most at-risk youth; and (3) form a citywide coalition to oversee the plan, collect data, and advocate to key stakeholders. In 2016, the research team sought to assess progress on the three areas of focus and identify next steps for prevention (i.e., the Strategic Refresh). The data used for this aim focused on the qualitative data collected from adolescents in Baltimore City in 2017, which

assessed adolescents' knowledge, attitudes, and beliefs about teen pregnancy prevention efforts in Baltimore.

3.3.2 Rationale for Baltimore Context

In the study, participants were adolescent males and females between the ages of 15 and 19 years currently living in Baltimore, MD. The social and economic plight of the city offer a unique setting to explore its influence on young people's reproductive decisions and behaviors. While a majority of Baltimore residents identify as African American/Black (62.3%), there is diversity across the neighborhoods (Baltimore Neighborhood Indicators Alliance – Jacob France Institute, 2017). Baltimore city is an optimal location to conduct the study because there are several efforts by the local government, academic institutions, and community organizations to address teen pregnancy and improve access to reproductive health services for adolescents. Figure 3.2 illustrates the most recent teen pregnancy rates by neighborhood, in which darker shades of purple indicate the highest rates. Despite declining rates in the past decade, the teen birth rate in Baltimore is twice as high as the state of Maryland, with Black and Hispanic youth reporting the highest pregnancy and birth rates in the city (Maryland Vital Statistics, 2018). In light of the racial disparities that persist in teen pregnancy rates, and unintended teen pregnancies specifically, the perspectives of Baltimore youth will serve not to represent U.S. adolescents generally but act as a microcosm to understanding adolescents' experiences on a local level.

Figure 3.2 Map of 2018 Teen Pregnancy Rate by Neighborhood



Three communities were targeted for this research based on their changes in teen pregnancy rates since 2010: Hamilton, Southeastern (Patterson Park), and Upton/Druid Heights (Figure 3.3), each indicated by a star on Figure 3.2. The neighborhoods differ in racial composition, median income and teen pregnancy rates. Hamilton, located in Northeast Baltimore, is a middle-class neighborhood with a majority African American population. Patterson Park is racially diverse with 14% of the population identifying as Hispanic, 45% White and 33% African American. Lastly, Upton/Druid Heights is located in West Baltimore, a predominately low-income African American neighborhood (90%). It is stricken by high levels of crime, drug use and poverty.

Figure 3.3 Trends in Teen Birth Rates from 2010 to 2018 in Three Baltimore Neighborhoods

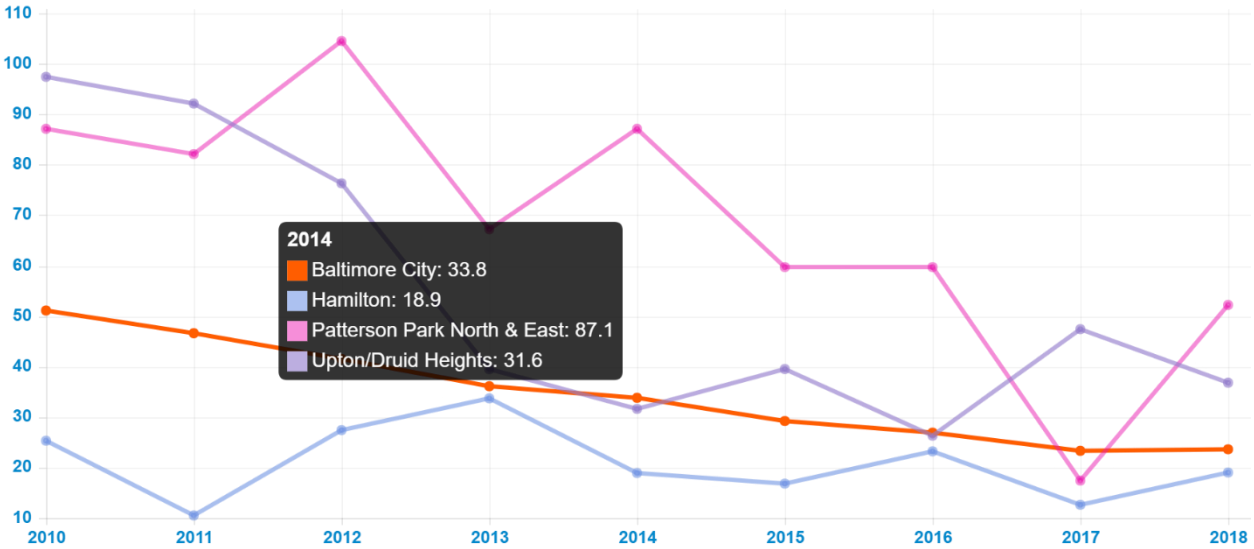


Table 3.1 provides information on each of the priority neighborhoods, including the change in teen birth rate from 2009 to 2014 and the access to teen pregnancy prevention programming. These neighborhoods are geographically different and serve as a means to capture the diversity of the city, and account for the context in which young people live in.

Table 3.1. Priority neighborhoods for Strategic REFRESH

Neighborhood	Population	Median Income	2014 Birth Rate	Change in Birth Rate 2009-2014	Reason for inclusion
Hamilton	13,002	$71,690	18.9	-72.23	Significant decline in teen birth rate, no intensive receipt of prevention activities
Southeastern (Patterson)	6,260	$69,836	87.1	7.29	Slight increase in teen birth rate
Upton/Druid Heights	10,342	$21,359	31.6	-62.74	Significant decline in teen birth rate, with high intensity of prevention activities

3.3.3 Study Participants

A total of forty-six youth between the ages of 15 and 19 participated in the 13 focus groups. Inclusion criteria in the study were that youth lived in one of the priority neighborhoods, able to speak and understand English and be between 15 and 19 years of age. Both male and female adolescents were included in the study. Due to the nature of qualitative research methodologies, the final number of study participants is determined by the richness and saturation of the data through an iterative analytic approach. Saturation is defined and reached when no new information is obtained from the data, and there is redundancy in the perspectives and themes (Malterud, Siersma, & Guassora, 2016). Therefore, the current sample size of 46 participants was determined to be sufficient since it captured the potential heterogeneity between participants and normative behaviors and perceptions of adolescents in Baltimore.

3.3.4 Data Procedures and Collection

Twelve focus groups were conducted across the three priority neighborhoods. More specifically, four focus groups were conducted in a neighborhood whose teen birth rates had increased over the past 10 years (Patterson); four focus groups were conducted in a neighborhood whose teen birth rates had declined more than the city's average and had received intensive programs and services around teen pregnancy (Upton/Druid Heights); and four focus groups were conducted in a neighborhood whose teen birth rates had declined more than the city's average, but had not received intensive programs and services around teen pregnancy (Hamilton). Finally, one additional focus group was conducted in a South Baltimore neighborhood (Brooklyn/Curtis Bay) that had a school with an early childhood education program for parenting teens. The 2014 teen birth rate in South Baltimore was 87.1, the highest among the target neighborhoods. Participants in this last focus group did not match the eligibility criteria (ranged in age, only female); however, they were included due to the lack of representation of teen parents in other focus groups.

Using a purposive sampling approach, participants were recruited through existing networks and referrals from local high schools. Due to the collaborative nature of the initiative, partners were informed of

the research study and provided information to share with interested youth. This sampling approach is particularly successful for hard to reach populations, such as adolescents in this case (Patton, 1990). Any interested youth were screened for eligibility and required to provide written consent prior to participating in the study. Participants under 18 years were given parent permission forms and written assent documents prior to enrolling in the study. The data was collected between November 2016 and March 2017. A group of six women (three from JHSPH and three from the Baltimore City Health Department) of different races collected the data. All were trained in qualitative data collection.

All focus groups were stratified by sex (male and female) and age (15-17 and 18-19) to avoid compromising the reliability of data due to the discussion of sensitive issues. Focus groups were held at five high schools at a convenient time. Food was provided at each group. Prior to starting each focus group, the facilitator explained the purpose of the study and answered questions. Each participant completed a brief demographic questionnaire. The focus groups were conducted by a trained study team member in qualitative data collection, while another team member was responsible for notetaking. Participants were assigned a unique study identification number to protect their privacy. All focus groups were digitally recorded. Each group lasted between 45 and 90 minutes. Participants were not compensated. All audio recordings were uploaded to a secure Dropbox folder and sent to a reputable company for verbatim transcription. Each transcript was verified to ensure accuracy in language and any inaudible sections missed by the transcriber. The demographic data was collected via paper surveys and entered into SPSS for analysis. Basic frequencies were conducted to capture the characteristics of the sample. Team discussions and analytic memo-writing were used throughout the collection process to reflect on the key themes emerging from the data. In addition, constant comparisons and member checking were used as techniques during data collection to strengthen the credibility and confirmability of the findings.

3.3.5 Focus Group Interview Guide

The focus group discussions were semi-structured, allowing participants to discuss topics or concepts relevant to four areas: sexual health education, access to family planning services, contraceptive use and recommendations for the teen pregnancy prevention programs. The structure of the interview started broadly by asking a series of open-ended questions on their knowledge of sexual and reproductive health. While the focus groups were not conducted to specifically focus and answer the questions posed in this dissertation, the guide provides an opportunity to explore adolescents' perspective about pregnancy and their social influences. The interview guide can be found in Appendix A. In sections B and D of the interview guide, the following questions are directly tied to the focus of this dissertation:

- *What do you think of when you hear the words "family planning" or reproductive health"?*
- *If you/or your friend told you that they didn't want to get pregnant or get someone else pregnant where would you tell them to go? Who would you tell them to talk to?*
- *Think about a teen that you know who has been/gotten someone pregnant? How do you think it affected her/him?*
- *What kinds of actions/steps can teens take to prevent pregnancy? Challenges? Potential solutions?*

3.3.6 Qualitative Data Analysis

The essence of qualitative research is the constructivist perspective, which permits multiple truths based in the experiences of the researcher and participants to coexist. The author identifies as a Black early immigrant woman, who is aware of how her personal experiences with race, class and gender frame her approach to working with adolescents. While the first author is not from Baltimore, MD, she has personal and professional experience living in predominately Black cities across the U.S. Based on this identity, the data was analyzed using a reproductive justice lens and intentionally sought opportunities to view adolescents' responses to pregnancy not in a negative light but rather on a full spectrum informed by culture, identity and societal norms. Bracketing was used as a technique to clear my thoughts and be

reflective of my own knowledge, questions, and assumptions. This created space to be open and receptive to the emerging ideas and themes from the participants.

This study used a phenomenological approach to data analysis, which explores how individuals define and describe a concept or phenomenon based on their lived experiences (Creswell, 2007). Phenomenology synthesizes individuals' experiences of a phenomenon to its essential components, per van Manen (1990) "grasping at the very nature of a thing". In this study, pregnancy intentions are the phenomenon of focus, in which participants provide an in-depth exploration of how they define, understand and conceptualize their intentions as adolescents; in addition to understanding what social factors inform their perspectives, attitudes, and norms around preventing or promoting a teen pregnancy. The information was used to develop descriptions of "what" and "how" they experience the phenomenon (Creswell, 2007; Moustakas, 1994). Phenomenological research is rooted in philosophical perspectives, one being the "suspension of all presuppositions" (Creswell, 2007). This requires the researcher to set aside any bias or judgements in order to fully understand the participants experiences and perspectives. Qualitative techniques such as bracketing, memo writing and debriefing with other researchers were used for reflective thinking to set aside any bias, pre-existing knowledge or assumptions.

A sequential method was adopted to analyze the data, by initially applying a deductive approach. The following research question guided the analysis: What are the salient social factors that contribute to how adolescents in Baltimore form their intentions about a future pregnancy? Using the research question and conceptual framework (Figure 2.2) as a guide, a deductive thematic approach was used to analyze the data to better understand pregnancy intentions among adolescents in Baltimore as a phenomenon. This approach assumes that certain core concepts are within the data, based on knowledge of the extant literature on the topic (Bradley, Curry, & Devers, 2007; D. R. Thomas, 2006). Data were coded into categories. Subsequently, the inductive approach was used to derive themes from the data not mentioned in the conceptual framework. This permitted for the data to be driven by adolescent voice and experiences (D. R.

Thomas, 2006). The data was analyzed separately by sex and age, and then compared to identify similarities and differences in salient themes. Yin (2016) five phases of qualitative data analysis: compiling, dissembling, reassembling, interpreting, and concluding were used to guide the analytic process.

Phase 1: Compiling the Data

In the first phase, all the transcripts were organized using a proper naming scheme. To become familiar with the data, each transcript was read and inventory on the data quality, duration, participant type was recorded. Atlas.ti8 was used as the data management system to store and organize the data.

Phase 2: Dissembling the Data

Dissembling the data helps to reduce the data into smaller, manageable chucks. To start, an a priori codebook was developed guided by the research question and conceptual framework. To test the preliminary codebook, line by line coding on a few transcripts was completed. According to Charmaz (2006), this step is useful because the research is able to focus on overarching concepts relevant to the phenomenon. The preliminary codebook was applied to 25% of the transcripts to test its efficiency in coding the data with each transcript coded by one researcher. The researcher met with advising faculty to discuss the coding process, patterns, and update the codebook based on key data missed from the original codebook. This iterative process continued until there was consistency in coding, after which focused coding was used on the remaining transcripts by one coder. Throughout the coding process, analytic memo writing was used to capture decision-making, discrepancies, and bracketing of personal experiences that might influence what is included.

Phase 3-5: Reassembling, Interpreting and Concluding the Data

After coding, code summaries were completed to synthesize and identify salient themes from the data. Code summaries involve recording the frequency, whom, and details captured in a code, which is used to identify main takeaways. In phenomenological data analysis, horizontalization is used to go through the

data and highlight significant quotes that highlight how individuals experienced the phenomenon (Creswell, 2007; Moustakas, 1994). Across the participant types (including age and sex), themes were compared for similarities and differences. The code summaries were used to write textual and structural descriptions. These descriptions expound on what participants experienced and the context of the phenomenon. In the reassembling and interpretation phases, constant comparisons were used to ensure no ideas or information was missed in the analysis process. Rich representative quotes were identified to reflect the emergent themes focused on pregnancy intention and perceptions of teen pregnancy.

3.4 Quantitative – Sampling, Data Collection and Analysis for Aim 2

Aim 2: To characterize and examine the multi-dimensionality of pregnancy intentions among a national representative sample of U.S. adolescents aged 15 to 19 years old

2a: To classify adolescents' perspectives of future pregnancies into profiles by sex

2b: To assess the demographic and social factors associated with adolescent pregnancy intention profiles by sex

The second aim of the dissertation was focused on addressing the measurement challenges of pregnancy intentions described in section 2.3.2, by identifying a person-centered approach to capturing pregnancy intentions among a nationally representative sample of U.S. adolescents 15 to 19 years old using latent class analysis. First, single item measures from NSFG were used to classify and describe pregnancy intention profiles by sex. Then, demographic and social factors aligned with existing literature were assessed to examine the association to the pregnancy intention profiles. Table 3.3 provides a summary of the single item variables from NSFG that were used to capture the measures of interest. Sociodemographic factors such as age, race/ethnicity, and socioeconomic status were included as covariates in the analysis. Table 3.4 provides more details on how the covariates were categorized.

3.4.1 Data Source

The National Survey of Family Growth (NSFG) is a household survey that collects information on attitudes and behaviors regarding childhood experiences, family life, marriage, pregnancy, family planning and overall reproductive health. The first NSFG survey was conducted in 1973 among a nationally representative sample of women ages 15 to 44 in the United States. In 2002, the survey included data from men ages 15 to 44 and was expanded to also include individuals up to 49 years old in 2015. Excluded from the survey are individuals in institutions, such as prisons or detention centers, residential psychiatric facilities, homes for intellectually disabled, and those living on military bases. Since 2006, the survey has been administered continuously every year and released in two-year clusters.

To ensure the dataset is nationally representative of U.S. noninstitutionalized residents, the NSFG uses a multi-stage, probability-based sample design. Using 2010 census data, the five-stage sampling process starts with using probability to select (1) primary sampling units (metropolitan areas, counties) and (2) census blocks. Then (3) housing units and (4) eligible participants are selected. In the fifth stage, a two-phase sampling approach is conducted to account for respondents' non-response. Once a household within the sampling frame is identified, one respondent per household is selected to participate in the survey. All respondents provide informed consent. Minors under the age of 18 are given assent forms to complete along with parent/guardian consent prior to participating in the survey. Among eligible respondents, the data is collected via in-person interviews in their homes by a trained female interviewer. For more sensitive topics, respondents are self-directed through an audio-computerized system to answer the questions. The weighted response rate for the four year (2015-2019) total sample was 64.3%. The rates were similar for adolescents 15-19, 66.8% and 65.4% for adolescent females and males, respectively.

Sampling Weights

In NSFG some population groups, including racial minorities (Hispanics, Blacks), adolescents, women, urban and rural localities, are oversampled. Therefore, sample weights are applied to provide

accurate and representative estimates of the national population. The final NSFG sample weights are comprised of four major components: an adjustment for unequal probability of selection, a unit nonresponse propensity adjustment, a post-stratification factor, and a weight trimming step.

There are limited datasets that collect comprehensive data on adolescents, especially as it relates to sexual and reproductive health. NSFG, a dataset that is collected frequently and rigorously, provides an opportunity to capture information from a nationally representative sample of U.S. adolescents. While other national datasets like the National Longitudinal Study of Adolescent to Adult Health (Add Health) and National Longitudinal Survey of Youth 1979 (NLSY79) are longitudinal, the original samples are now adults. The recency of NSFG data permits the findings to be applicable to today's adolescents, who are growing up in a vastly different society due to technology, shifting social norms, and public health concerns.

3.4.2 Analytic Sample

The sample included data pooled from the two most recent rounds of NSFG data, 2015-2017 and 2017-2019 to ensure a sufficient sample size. The sample design, content, and data collection are similar across the two cycles. Below is a table with the overall sample size and response rates for each collection period (Table 3.2). The analytic sample includes adolescents 15 to 19 years, both male and female. From 2015 to 2019, a total of 3,812 adolescent males and females were surveyed.

Table 3.2 NSFG Sample Sizes and Response Rates

	2015-2017	2017-2019	2015-2019
TOTAL	**10,094**	**11,348**	**21,442**
Male 15-49	4,540	5,206	9,746
Female 15-49	5,554	6,142	11,696
ADOLESCENTS	**1,810**	**2,002**	**3,812**
Male 15-19	886	1,032	1,918
Female 15-19	924	970	1,894

3.4.3 Measures for Aim 2

For Aim 2a several measures used to classify and describe pregnancy intention profiles among a nationally representative sample of U.S. adolescents 15-19 years old. To capture the three domains of automatic cognition (affect, self, and semantic meaning) displayed in the conceptual model (Figure 2.3), the following NSFG measures and variables were included in the analysis. Under each domain, single item variables were selected as proxies to measure the related concepts thought to inform pregnancy intentions based on past literature. Table 3.3 lists the NSFG measures and how it was categorized.

Domain: Affect

Affect is defined as the feelings or emotional cues linked to pregnancy (Bachrach, 2013). Based on the variables available in NSFG: wantedness and happiness around a future pregnancy were included to capture affect. The responses were categorical for each of the questions. The categories were maintained as originally presented in NSFG to account for the uncertain or ambivalent (I don't know) responses. For those who responded with "I don't know", a follow up question was asked to verify their response. The following questions were asked:

- "Do / If it were possible, would you **want** to have (a/nother) baby at some time?"
- "If you got pregnant now how would you **feel**?"
    - "If you got (your wife or partner / a female) pregnant now how would you feel?"

Domain: Self

The *Self* domain represents the salience and personal significance pregnancy has on an individual (Bachrach, 2013). Two single items in the Birth Desires and Intentions section of the NSFG focused on planning and timing were included:

- "Looking to the future, do you **intend** to have (a/nother) baby at some time?", "
- "When do you **expect** your (first/next child) to be born (after this pregnancy)? "

The responses were categorical for each of the questions and remained as categorized by NSFG.

Domain: Semantic meaning

Semantic meaning, which represents how an individual interprets the meaning of a pregnancy, was measured using the following items:

- "If it turns out that you do not have (any / any additional) children, would that ***bother*** you?".

  Responses were coded: a great deal, some/a little, not at all and I don't know.

Pregnancy acceptability was assessed using a single item where respondents are asked "Is it okay for a young, unmarried woman to have and raise a child?". This variable acts as a proxy for capturing social norms since respondents are not being asked about themselves, but rather asked to share their perspectives of another person. The categorical variable was coded yes, no, I don't know.

Table 3.3. List of NSFG Single Items and Variables

Domain	Description of indicator	Categorization
Affect	Do / If it were possible, would you want to have (a/nother) baby at some time?	Coded as: 0: No 1: Yes 2: I don't know
	If you got pregnant now how would you feel? If you got (your wife or partner / a female) pregnant now how would you feel?	Coded as: 0: Very upset 1: A little upset 2: A little pleased 3: Very pleased 4: I don't know
Self	Looking to the future, do you intend to have (a/nother) baby at some time?	Coded as: 0: No 1: Yes 2: I don't know
	When do you expect your (first/next child) to be born (after this pregnancy)?	Coded as: 0: Within 2 years 1: 2 to 5 years 2: More than 5 years 3: I don't know
Semantic meaning	If it turns out that you do not have (any / any additional) children, would that bother you a great deal, some, a little, or not at all?	Coded as: 0: A great deal 1: Some/A Little 2: Not at all 3: I don't know

	Is it okay for a young, unmarried woman to have and raise a child?	Coded as: 0: No 1: Yes 2: I don't know

Auxiliary Variables

Demographic and social factors

Demographic information was collected from the participants and included in analyses. These variables include age at interview, race/ethnicity, sexual orientation, highest education level, religion raised on and urbanicity (urban vs. rural). As a proxy for socioeconomic status, receipt of public assistance (coded yes or no) and mother's education (coded as less than high school, high school diploma, some college and bachelor's degree of higher) were used. Age of mother at first birth was dichotomized, with less than 20 years old representing being a teen parent. Evidence supports teen pregnancy as cyclical, with children of teen parents more likely to become teen parents in the future (Meade, Kershaw, & Ickovics, 2008; Whitehead, 2009). Sexual activity history was dichotomized (coded as yes or no). Supported by existing literature, these demographic factors are identified as being linked to adolescent reproductive decision-making and behaviors (Charmaraman & McKamey, 2011; B. C. Miller, 2002; Secor-Turner et al., 2011).

Interpersonal influences include family, partner, and cultural norms that might have an effect on how adolescents frame their schema around teen pregnancy and intentions. Parent communication about sex was included as one measure of interpersonal influences. Parent communication was assessed as a single item where respondents are asked "*Before you were 18 years old, which, if any, of the topics (did you ever talk/have you ever talked) with a parent or guardian about?*" The following topics specifically related to pregnancy were included: (a) Methods of birth control; (b) How to use a condom and (c) Waiting until marriage to have sex. Dummy variables were created, and each item was coded as no or yes. An additional item was included to measure having received any communication about sex from their parent on one of the three topics included individually in the model. Supported by existing literature, these factors are

identified as being linked to adolescent reproductive decision-making and behaviors (Henrich et al., 2005; B. C. Miller, 2002).

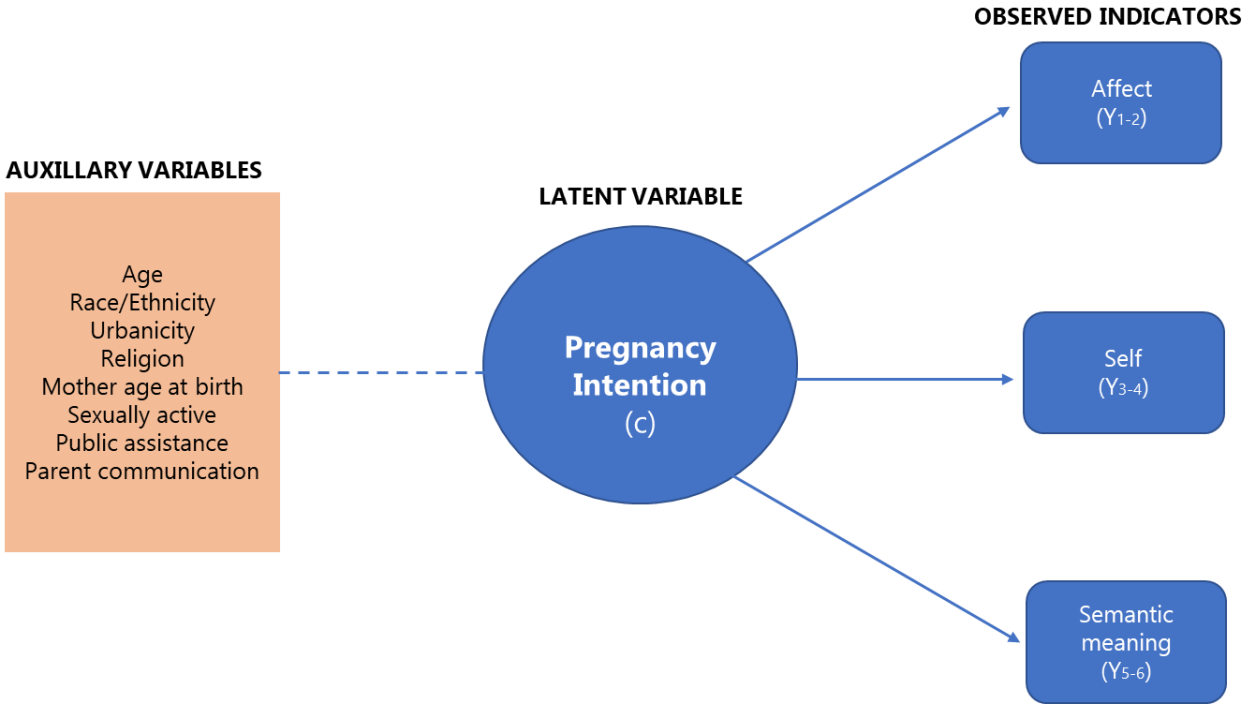
Table 3.4. List of Auxiliary Variables to Include in Analysis

Variable	Description	Categorization
Age [AGER]	Age at time of interview	0: 15-17 1: 18-19
Race/ethnicity [HISPRACE]	Race and ethnicity	0: Non-Hispanic White 1: Non-Hispanic Black 2: Hispanic 3: Non-Hispanic Other
Religion [RELRAISED]	Religion raised on	0: No religion 1: Christianity 2: Other religions
Sexual Orientation [ORIENT]	Sexual orientation	0: Heterosexual 1: Homosexual/gay/lesbian 2: Bisexual
Sexually active [HADSEX]	Ever had sexual intercourse	0: No 1: Yes
Education attainment [EDUCAT]	Highest education level	0: 9th grade or less 1: 10th grade 2: 11th grade 3: 12th grade, no diploma 4: HS Graduate/GED 5: 1+ years of college
Age of mother at birth [AGEMOMB1]	Age of mother at first live birth	0: Under 20 years 1: 20 years or older
Mother's education [EDUCMOM]	Highest level of education for mother (or mother-like figure)	0: Less than HS 1: HS/GED 2: Some college 3: Bachelor's or higher
Public assistance [PUBASSIS]	Received public assistance in the past year	0: No 1: Yes
Urbanicity [METRO]	Place of residence at time of interview	0: Urban 1: Rural
Parent communication	Parental communication before 18 on 3 topics related to sexual health: (1) Methods of birth control (2) How to use a condom (3) Waiting until marriage to have sex	0: No 1: Yes
	Parent communication before 18 on any topic related to sexual health	0: No topics 1: At least one topic

3.4.4 Data Analysis for Aim 2

In Aim 2a, the study used latent class analysis (LCA) to identify profiles of pregnancy intentions among adolescents 15 to 19 years old. LCA focuses on finding similarities and differences in people, and then categorizing them into classes or profiles (Vermunt & Magidson, 2004). In Aim 2b, demographic and social factors were assessed as correlates of membership. In LCA, every individual has a probability of being included in a class based on their responses to indicators included in the model. Pregnancy intention, a latent variable, is a construct that cannot be measured directly or exactly. Therefore, a measurement model that includes observable indicators, such as happiness, wantedness, or timing were used to capture pregnancy intentions. Each of the observed indicators were categorical. Figure 3.4 is the LCA measurement model, which provides a visual representation of the observed indicators (blue squares), latent variable (blue circle) and auxiliary variables, which are the covariates that will be used to predict class membership (orange square).

Figure 3.4. LCA Measurement Model



There are two parameters of interest in an LCA model: class membership probabilities and the conditional item probabilities. First, the class membership probability is the probability of individuals in a given latent class *k*, denoted by π_k. Each individual included in the model will have conditional probabilities on how they respond to each indicator, which will inform their class membership. The LCA model implies that the *k* classes are mutually exclusive, meaning that each individual has membership in only one class. Second, the conditional item probability is the probability of response *i* for indicator Y given membership in a particular class P(Y= *i* | c=*k*), which are used to differentiate between the classes. Table 3.5 provides an explanation of the notation in the LCA model. The LCA model has two assumptions: (1) individuals are independent and (2) conditional independence. The assumption of independence states that an individual's class membership and observed data are not affected by another individual. Conditional independence assumes that given latent class membership, the probability of one indicator is independent of other indicators included in the model.

Table 3.5 LCA Notations

k	Class, k= 1,2,3…
Y_i	Observed indicator for individual *i*
π_k	Class membership probability, or probability of individuals being in class k

Exploratory analysis was conducted to gain familiarity and document descriptive statistics. By sex, cross-tabulations and frequencies of the six observed indicators and covariates were done. To ensure that the model can provide interpretable results, the number of response patterns was explored. The possible response patterns should be 2^M, with M indicating the number of indicators. Identifiability and estimability were tested. Identifiability is an attribute of the model, ensuring that the parameters (indicators) being estimated have unique interpretations. The necessary but sufficient conditions for being identifiable is the number of parameters less than or equal to the number of pieces of data: $(J \times M) + (J - 1) \leq 2^M - 1$, where J is the number of classes and M the number of indicators. The number of pieces of data equals the number of possible combinations of each of the observed indicators minus 1 ($2^M - 1$). For this study the necessary conditions were met: $(3 \times 6) + (3 - 1) \leq 2^6 - 1 = 20 \leq 63$.

Estimability is an attribute of the data, which ensures that there is enough data to estimate the parameters included in the analysis. In assessing missingness in the data, there was less than 10% missingness in each of the datasets. Maximum likelihood estimation was applied to address missing data, which is assumed to be missing at random (Vermunt & Magidson, 2004).

First, latent class enumeration was conducted using a set of six observed indicators. Since the exact number of latent classes representing pregnancy intentions was unknown, an exploratory approach was used, which started with the most parsimonious 1-class model and fitted successive models with increasing numbers of classes. Each latent class solution was replicated 2000 times beginning at random starting values to account for the complex sampling design and to ensure the global maximum likelihood estimates had been reached. Maximum likelihood estimation with robust standard errors incorporating all available data

was used to deal with missing data and to estimate parameters. We accounted for the complex survey design by using the four-year sample weights provided by NSFG to ensure the sample was nationally representative (Muthén and Muthén, 1998–2015). Class enumeration was conducted separately by sex under the hypothesis that pregnancy intention class structures would differ by sex.

The final number of classes was determined based on statistical model fit indices (Nylund et al., 2007), such as (1) Bayesian Information Criterion (BIC) and (2) Akaike Information Criteria (AIC), where smaller values indicate a better fit model; and (2) the Lo-Mendell-Rubin test, where when non-significance is reached the number of classes prior to non-significance is defined as the appropriate number (Nylund, Asparouhov, & Muthén, 2007). These criteria tested the improvement in fit for the model under consideration compared with a model with one less class. Entropy, an index of confidence that individuals belong to the correct class and that adequate separation between latent classes exist where higher scores reflect a better fit, and conceptual meanings of the classes were assessed to determine the best class solution. Based on the item probabilities, each of the classes were given a descriptive label to differentiate between the classes.

Multinomial Logistic Regression

After selecting the optimal number of latent classes, three for each sex, I examined differences in classes by sex across covariates: age, race/ethnicity, religion, urbanicity, receipt of public assistance, age of mother at first birth, sexual activity, and parent communication about sex (birth control, condom use, waiting until marriage), which were entered simultaneously in a multinomial logistic regression model to identify the correlates of class membership relative to the largest class (Delayed Pro-pregnancy). Using R3Step, this three-step approach allows one to initiate the multinomial regression and control for uncertainty in class assignment while maintaining the class structure and meaning found initially. This approach is suitable because it allows for the exploration between the latent classes and auxiliary (covariate) variables, accounting for bias and mean square errors (Asparouhov & Muthén, 2014). This approach yielded

adjusted odds ratios (aORs) and 95% confidence intervals (CIs) illustrating associations between the covariates and class membership. All analyses were conducted with Mplus 8.

The model for multinomial logistic regression:

$$\log\left(\frac{P(class=k)}{P(reference\ k)}\right) = \log(RR_k) = \beta_{ok} + \beta_{1k}X_1 + \ldots + \beta_{pk}X_p \qquad \text{(Equation 1)}$$

where,
k = latent class
β_{ok} = intercept, the log relative risk of being in class k compared to the reference class
β_{1k} = change in the log relative risk of being in class k compared to the reference class for every unit increase in X_p, holding all other covariates constant
X_p = predictor variable of interest, including controlling for covariates

3.5 Ethical Considerations

For the qualitative data, the Strategic Refresh study team obtained approval from the JHSPH Institutional Review Board (IRB) to conduct the research. All participants were given study identification numbers and were asked to use pseudonyms when discussing themselves or peers in the focus groups. Confidentiality was stressed verbally through the consent process and during data collection. To ensure further protections, a study team member removed any personal identifiers from the transcripts. All of the transcripts were assigned generic labeling, limiting the occurrence of identifying any of the participants. The findings from the study were aggregated and presented as salient themes across all the participants. The representative quotes used do not mention school names, but rather broad descriptions such as sex and age; therefore, preventing the risk of identifying participants.

The National Center for Health Statistics (NCHS) has implemented both legal and ethical standards to ensure the protection of all NSFG respondents. Prior to participating in the survey, all respondents provided an informal consent (and assent, where applicable) and were promised the confidentiality of their responses. For the NSFG data to be publicly available, an extensive review process was administered by the NCHS Disclosure Review Board, which included the de-identification of all individual, personal data. Furthermore, to minimize any risks of disclosure, a number of variables were suppressed and modified to prevent any indirect identification. For more identifiable information such as geographical location, access

to the restricted dataset must be filed separately via an internal process. Only publicly available data was used for analysis in this dissertation.

This overall dissertation was a secondary analysis, which presented no additional risks or harms to participants. While there was no direct benefits to respondents, the indirect benefits are societal, which have the potential to provide insight on better serving the reproductive health needs of U.S. adolescents. All materials and procedures were reviewed, approved and exempted by the Johns Hopkins Institutional Review Board.

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CHAPTER FOUR

Qualitative Results

4.1 Overview

This chapter describes the qualitative findings from focus group discussions conducted with adolescents in Baltimore, MD. The aim of the study was to explore the social factors that influence how pregnancy intentions are conceptualized among adolescents 15 to 19 years in Baltimore, MD. Participants shared personal experiences and those of their peers, providing insight into the context in which adolescents base their pregnancy intentions and reproductive health decision-making. Overall, two main themes emerged from the data: (1) stated pregnancy intentions and (2) shared schemas of sex and pregnancy. Among the shared schemas of sex and pregnancy, five sub-themes were identified: (a) sex is a gendered responsibility; (b) teen pregnancy is cyclical and common; (c) teen pregnancy is not a completely negative experience; (d) having a child fulfills emotional and relational voids; and (e) pregnancy should happen early, just not too early. These themes were consistent across sex and age group. Below each of the themes are explained in detail and supported by representative quotes.

4.2 Sample Characteristics

A total of forty-six youth between the ages of 15 and 19 participated in the 13 focus groups. Participants predominately identified as being Black/African American (84.8%). The average age of participants was 17 years old, with slightly more female participants (55.6%). A majority of participants were enrolled in high school (95.7%) and currently not employed (73.9%). Of the 46 participants, six (13.0%) reported a past pregnancy or getting someone pregnant. Four participants (8.6%) were currently parents. Table 4.1 provides more details of the sample's characteristics.

Table 4.1 Demographic Characteristics of Study Participants (N=46)

	N	%
Age (*M*=17.15, *SD*=1.189)[a]		
15-17	23	50.0%
18-19	17	50.0%
Sex[b]		
Male	20	44.4%
Female	25	55.6%
Enrollment		
Not Enrolled	1	2.2%
In High School	44	95.7%
Taking College Courses	1	2.2%
Neighborhood		
Hamilton	15	32.6%
Patterson Park	14	30.4%
South Baltimore	4	8.7%
Upton/Druid Heights	13	28.3%
Employment		
Not Employed	34	73.9%
Part-Time	11	23.9%
Full-Time	1	2.2%
Race		
White	3	6.5%
Black	39	84.8%
American Indian/Alaska Native	1	2.2%
Other	3	6.5%
Mother/Guardian Education[c]		
Less than HS	10	21.7%
HS/GED Completion	16	34.8%
More than HS	18	39.1%
Don't Know	1	2.2%
Father/Guardian Education[d]		
Less than HS	5	10.9%
HS/GED Completion	20	43.5%
More than HS	8	17.4%
Don't Know	11	23.9%
Past Pregnancy[e]		
No	39	84.8%
Yes	6	13.0%

[a]Six participants did not provide their age.
[b]One participant did not provide their sex.
[c]One participant did not provide mother's education.
[d]Two participants did not provide father's education.
[e]One participant did not provide their pregnancy history.

4.3 Stated Pregnancy Intentions

Participants expressed a range of intentions. Most participants discussed being set in their intentions to not have a baby as a teen, as stated by a 15-17-year-old male participant,

> *I'm not even out of high school yet, so why would I set myself up like that? I'm not going to say failure because it's a new life form. Birth is a beautiful thing, but if your life gets messed up you have to live with, I have a baby, I can't provide for it. (15-17yo Adolescent Male)*

However, some expressed more elasticity on when and if a pregnancy was to occur. Female participants across four focus groups expressed a fatalist viewpoint of teen pregnancy. For example, one young woman noted "I can try and plan, but still get pregnant" (Teen Parent); therefore, pregnancy was seen as an event outside of her control.

> *Because like now I'm planning on not having kids, but if it happens, it's just going to happen. It's not that I planned to have kids but I just slipped up. It happened. (15-17yo Adolescent Female)*

Still others desired to be teen parents. For example, one teen parent shared how she and her partner planned her pregnancy, which led to the birth of her son.

> *We basically planned [name of son] with ...me and his father. We discussed having him and then it happened. We were OK with it. (15-19yo Teen Parent)*

Most participants in the study expressed not wanting to get pregnant while in high school, but admitted that they and many of their peers had intentions of getting pregnant before 20 years old. It was not an anomaly for both girls and boys to intentionally become pregnant or impregnate someone as teens. Younger participants (15-17) shared specific encounters with peers who sought to have intentional pregnancies.

> *Participant 1: Before we have sex, they might ask, "Do you want to have a baby?" Some people plan it out ahead of time before having it. Some people just, they in there and it feel good to them so boom, "I got pregnant".*
> *Facilitator: Let me push there a minute. Do you think there are young people who want to have kids as a teen?*
> *Participant 1: Yes, of course.*
> *(15-17yo Adolescent Male)*

> *Participant 1: I don't know a person that don't want to become pregnant.*
> *Participant 2: Yes. Everybody wants to be pregnant.*

Participant 1: Because I just know everybody that's trying to be pregnant and I don't think that it's cute because I know a couple of people that's pregnant, and they're only like 16, 17, 18. (*15-17yo Adolescent Females*)

Across sex and age, participants shared that pregnancy intentions extend beyond preventing a teen pregnancy and include planned teen pregnancies, demonstrating a range in perspectives of when to have a baby.

4.4 Shared Schemas of Sex and Pregnancy

Across the focus groups, participants discussed shared schemas, or common perspectives held by adolescents in Baltimore about pregnancy intentions. Five perspectives were identified: (1) sex is a gendered responsibility; (2) teen pregnancy is cyclical and common; (3) teen pregnancy is not a completely negative experience; (4) having a child fulfills emotional and relational voids; and (5) pregnancy should happen early, just not too early. These perspectives were informed by societal and social norms around what is considered acceptable and appropriate for adolescents.

Sex is a gendered responsibility. Both male and female participants viewed the consequences of having sex as a major responsibility, especially for adolescent girls. The term responsibility was used by adolescents to symbolize the maturity required to handle all the possible outcomes of having sex, including pregnancy. Due to this responsibility, participants viewed having sex as inherently associated with pregnancy risk.

If you are having consensual sex with somebody, and you were being reckless or even if you're not being reckless, you know with sex comes children. that's a responsibility you took on when you started to have sex, (15-17yo Adolescent Female)

Participants discussed from the moment an adolescent girl becomes pregnant she, but not her partner, immediately bears the weight of the physical and emotional consequences of unprotected sex. Social stigma, described as girls having to "walk around pregnant", was mentioned in the majority of discussions as one example of the greater culpability placed on girls. A pregnancy was physically unavoidable for girls. This is in contrast to the discussions about how adolescent boys were not expected

to assume the same responsibility for sex and pregnancy as adolescent girls. One parenting female participant shared how her ex-boyfriend viewed her and other mothers of his children as "carry pouches", and felt it was their responsibility to carry and meet the obligations that came with having a child.

> *Basically, he was like "you a carry pouch. I don't know what you talking about." It didn't really affect his life, because he really didn't care. He don't come around a lot. He's always blaming...he was like, "I got played." I was like, "You can't blame you having babies on having played. You can blame yourself, because you don't know how to use a condom." (15-17yo Adolescent Female)*

Male participants echoed these same sentiments by discussing the double standard placed on adolescent girls. Adolescent boys were often described as being uninvolved, not wanting to use condoms, or sharing any of the responsibility that came with sex.

> *A lot of us males don't take a lot of responsibility. It's like a responsibility thing. You got to take responsibility. You got to be a man. If you're willing to lay down and have sex with a female, and then she get pregnant, and whatever happens, happens, take responsibility for it. If you get her pregnant, that's your baby. Do what you gotta do. (18-19yo Adolescent Male)*

The consensus was that sex was more of a responsibility for adolescent girls than boys. The responsibility comes with adolescent girls making decisions to protect themselves and their partners by either choosing abstinence or seeking birth control options to manage the potential outcomes of sex. However, all participants agreed that the imbalance placed a burden on girls that is unequitable.

Teen pregnancy is cyclical and common. All participants reported knowing a teen who was pregnant or had gotten someone pregnant at least once. Male participants stated that teen pregnancy was not necessarily acceptable but rather the norm, since they knew so many teen parents in their community. Teen pregnancy was often discussed as a generational norm. As noted by one male participant,

> *Because I guess if you see your mother like pregnant, having babies, that's what people grow up thinking, like, "It's good to have babies." (15-17yo Adolescent Male)*

Some of the 18-19 year old female participants provided context about the students at their school, stating it was typical for girls to be pregnant every school year.

> *Female Participant 1: Yeah it is. Every time you look there's someone pregnant.*

Female Participant 2: I know a couple people that aren't even in the building right now, and they're home because they were pregnant, or home because they just had a baby.

Participants stated that adolescents' perspectives around sex and pregnancy were greatly driven by family expectations and the desire to be accepted among their peers, particularly for girls. Expectations varied with some parents feeling it was best to have children early with little birth spacing whereas others had strong opinions about delaying childbearing for education and employment. Participants expressed having added pressure in meeting the expectations set by family members. One participant felt it was somewhat hypocritical for her parents to have such expectations when they themselves were teen parents.

Like, it's not a joke. Because so many people in my family got pregnant during high school and either finished high school and didn't get to finish the rest of their education or they didn't even get to finish high school, so it's like it's a really big pressure on me to be like the one who doesn't get pregnant in high school, so like, my family does not play about that at all. I kind of feel like they hypocritical in a sense... (15-17yo Adolescent Female)

For others, decisions were based on peers who perceived having a baby to be trendy, cool, and "cute". In a focus group with 15-17 year old female, a participant gave a scenario about the ease of being influenced by peers.

Imagine if you have a real naive child coming in here who's like 14, 15, and he come in and he see pregnant females. I'm not judging anybody or anything, so what do you think that's going to do them? Might pressure them into having a baby. They see your baby come out and they see it's so cute, they might think their baby going to be so cute, so they're going to have a baby. (15-17yo Adolescent Female)

It was common to know an adult or peer who became pregnant as a teen, which made it easy to view teen pregnancy as normative. For some adolescents, the normalcy served as a signal of acceptability and appropriateness for early childbearing. For others, while not surprised by teen pregnancy, it motivated them to prefer other options.

Teen pregnancy is not a completely negative experience. While several participants discussed the challenges of a teen pregnancy, they also noted that a teen pregnancy was not always deemed to be a negative experience. Some participants shared personal stories about themselves, peers, and family

members that demonstrated positive transformations after having a child, which they believed provided a sense of purpose and motivation. Participants noted shifts in priorities, including becoming more mature (e.g., calmer temperaments), making better decisions (e.g., refraining from illegal behaviors, and fighting less), and increased engagement in positive activities (e.g., attending school and gainful employment) as a result of early childbearing.

> *It changed me. I used to always be outside, coming in the house late. [laughs] Talking back to whoever if I got something to say. I'm not going to lie. Sometimes I skip school, sometimes not all the time. Once I had [name of son], it's like, "OK. I want to do the better. I want him to do everything that I never had a chance to do." (Teen Parent)*

> *It affected my sister in a good way. But before she had sex, she was really running wild. She's a bad child. When she realized she was having a baby on the way, her life changed …she graduated. Now, she's a nurse. She's doing good in life and I really think my nephew changed her life because…she always say, "I don't know where I'd be at without him." (15-17yo Adolescent Male)*

Participants discussed that these positive examples of teen pregnancy framed how adolescents viewed pregnancy in general and their personal intentions. The positive anecdotes by teen parents demonstrated that a teen pregnancy is not a bleak experience for some young people, but rather could lead to personal development and growth. Early childbearing was reported to be protective for some adolescents and increased engagement in pro-health behaviors.

Having a child fulfills emotional and relational voids. Participants stated that some adolescents' pregnancy intentions were strongly motivated by their desires for emotional support from family, partners, or peers. Adolescents who encountered more adverse experiences often expressed pregnancy intentions toward having a child early because they wanted someone or something to love. Having a baby met this need.

> *There's different type of situations that people go through. I know this girl. She ain't never had no type of love in her life, like her parents. Now both her parents ain't in her life. She's been through a lot in her life. She wanted to have a baby so she can have that love, that unconditional love, somebody that would never leave her. That's why she wanted to have a child early. (15-17yo Adolescent Female)*

Others mentioned that adolescent girls often felt having a child would secure and maintain their romantic relationships. In one focus group with 18-19-year-old female participants, they discussed how girls perceived having a child would spur male partners to be present and emotionally available; however, it seldom had the intended results.

> *Female Participant 1: No, probably thinking that he's going to act right when she's pregnant.*
> *Female Participant 2: Like he got her all thinking they're going to get married and everything. I'm like, "No, he's not going to…"*
> *Female Participant 3: He will come home and do the same thing.*
> *Female Participant 2: Right. He going to come home and he's going to be there for like a week, and then he's not planning on being there anymore, and he's gonna start doing him, and then you stuck with the babies and your mom.*

Across focus groups, the desire for connections with others was clear. In the absence of stable connections and support, some adolescents opted to create those connections by having a child.

Pregnancy should happen early, just not too early. Based on the normalcy of teen pregnancy, participants went on to discuss when pregnancy should occur in the life course. Participants in all focus groups discussed the benefits to having children early. They felt it provided more opportunities to actively engage and grow as a parent. Some stated that this perspective also supported why being a teen parent in most cases was not perceived so negatively - starting early was much more acceptable than starting later in adulthood. For several participants, getting pregnant in their early 20s seemed ideal and appropriate.

> *I'm planning on having a baby but I want to have a baby when I'm 21. I want to have it when I'm young so I won't be too old when the baby grow up. I might be in my death stages. I want to have it young so I can spend time with it. Not with it but with my child. (15-17yo Adolescent Male)*

Although high school was too early, participants noted clear markers of what was also considered too old to start having children.

> *Female Participant 1: But I want to have kids when I'm around 23. Yeah, because nobody want to be 27 and running behind a one year old.*
> *Female Participant 2: I don't want to be no old mom.*
> *Female Participant 1: Because at 27, you're going to be wanting to go out and do this and do that, and when you're like 21, you're going to do that too, but when you're like 27, I'm going to want my child to be able to talk to me if I take him to somebody's house and be like "somebody did something*

to me" or they can talk to me and tell me. That's why I don't want to wait until I'm like 30. (18-19 year old Adolescent Females)

Participants shared their personal aspirations and goals, which informed their decisions to have sex or use any contraceptives. Several expressed the desire for financial stability or the opportunity to go to college, both of which would be hindered by having a child while in high school.

I agree with what he said. It could mess up your future. It could mess you up in the long run. I know people, like my mother for instance, that's why she didn't go to college, because she had me. That's the example, so I be like, "No. I got to get my life together. First I've got to be on my feet before I think about having a child." (15-17yo Adolescent Male)

I'm like, "What? No. That's, 'No." We've got college to think about." That's what I'm thinking about…We've got to think about the bigger picture. (18-19yo Adolescent Female)

However, some participants who were teen parents discussed not viewing their personal aspirations as an influence on their reproductive decision-making. As one participant stated, "it hasn't affected me, I can still go outside and do what I want to do" (Teen Parent). For some teen parents, having supportive family members and partners enabled them to have children during high school and continue to pursue their dreams.

CHAPTER FIVE

Quantitative Results

5.1 Overview

This chapter describes the quantitative findings supported by the latent class analysis. The study characterized and examined the multi-dimensionality of pregnancy intentions among a national representative sample of U.S. adolescents aged 15 to 19 years old. Using the cognitive social model of fertility intentions as a conceptual framework, latent pregnancy intention profiles were created stratified by sex. Then, demographic and social factors were included to assess the association with class membership. Based on the literature, I hypothesized that pregnancy intention profiles would differ for adolescent girls and boys. In addition, adolescents characterized as more vulnerable (e.g., lower socioeconomic status, children of teen parents and those from minority ethnic backgrounds) would be more likely have intentions that align with early childbearing. The key findings are described below after a description of the characteristics of the study sample.

5.2 Sample Characteristics

As shown in Table 5.1, a total of 3,812 adolescents (1,894 adolescent girls and 1,918 adolescent boys) ages 15 to 19 years old were included. A majority were between the ages of 15-17 years and identified as heterosexual. The sample comprised of mostly Non-Hispanic White adolescents (56.2%), followed by Hispanic (22%), Non-Hispanic Black (16%) and other races (5.4%). A third reported receiving public assistance last year, and 13% reported their mother having less than a high school education. Nearly three-quarter of the population were raised as Christian. Twenty-seven percent reported the age of their mother's first birth before 20 years old, and about 40% reported ever having sex.

Among female participants, 58.2% were between 15 and 17 years old. While a vast majority identified as heterosexual, about 15% identified as bisexual. Sexual orientation was asked randomly among half of the sample. Non-Hispanic White female participants accounted for a majority of the sample (55.3%), followed by Hispanic (23.2%), Non-Hispanic Black (16.6%) and other races (5%). About 84% of female

participants resided in metropolitan areas, and more than a third reported receiving some public assistance in the past year (37.9%). Using mother's education as a proxy for socioeconomic status, about 15% of female participants reported their mother having less than a high school education. There was an even distribution of the highest level of education attained, with less than 1% reporting not graduating high school with a diploma. More than a quarter (28%) reported age of mother at first birth at less than 20 years old. About 40% reported being sexually active.

Among male participants, 58.1% were between 15 and 17 years old. A majority identified as heterosexual (93.9%), while about 5% identified as a homosexual or bisexual. Similarly, to female participants, Non-Hispanic White male participants accounted for a majority of the sample (57%), followed by Hispanic (21.3%), Non-Hispanic Black (15.9%) and other races (5.8%). 28.2% of male participants reported receiving public assistance in the past year and 11.8% reported their mother having less than a high school education. The distribution for highest education level was even, except for less than 1% of male participants reported not having a high school diploma and 8.4% reported having at least one year of post-secondary education. About a quarter reported their mother's age at first birth being less than 20 years old. Nearly 38% reported being sexually active.

Table 5.1 Sample Characteristics [a]

	Total (N=3,812)	Female (N=1,894)	Male (N=1,918)
Age			
15-17 years	2,234 (58.2%)	1,122 (58.2%)	1,112 (58.1%)
18-19 years	1,578 (41.9%)	772 (41.8%)	806 (41.9%)
Sexual Orientation			
Heterosexual/straight	1,687 (87.7%)	778 (81.4%)	909 (93.9%)
Homosexual/gay/lesbian	43 (3.2%)	30 (2.6%)	13 (1.2%)
Bisexual	206 (9.1%)	164 (15.1%)	42 (3.7%)
Race/Ethnicity			
White, non-Hispanic	1,636 (56.2%)	824 (55.3%)	812 (57.0%)
Black, non-Hispanic	828 (16.3%)	423 (16.6%)	405 (15.9%)
Hispanic	1,165 (22.3%)	563 (23.2%)	602 (21.3%)
Other	182 (5.4%)	84 (5.0%)	98 (5.8%)
Religion Raised on			
No religion	613 (16.9%)	333 (17.8%)	280 (16.0%)
Christianity	2,857 (73.6%)	1.395 (73.2%)	1,462 (74.0%)
Other religions	342 (9.5%)	166 (9.0%)	176 (9.9%)
Socioeconomic Status			
Receipt of Public Assistance			
Yes	1,442 (33.1%)	769 (37.9%)	673 (28.2%)
No	2,370 (66.9%)	1,125 (62.1%)	1,245 (71.8%)
Mother's Education			
Less than high school	647 (13.0%)	361 (14.2%)	286 (11.8%)
HS graduate/GED	1,019 (24.9%)	501 (24.6%)	518 (25.2%)
Some college	1,061 (28.3%)	517 (27.5%)	544 (29.1%)
Bachelor's or higher	1,064 (33.4%)	501 (33.2%)	563 (33.6%)
Residence			
Urban	3,238 (84.5%)	1,609 (84.2%)	1,629 (84.8%)
Rural	574 (15.5%)	285 (15.9%)	289 (15.2%)
Highest Education Level			
9th grade or less	988 (25.1%)	479 (24.1%)	509 (26.1%)
10th grade	757 (20.3%)	390 (21.6%)	367 (18.9%)
11th grade	875 (22.4%)	419 (21.0%)	456 (23.8%)
HS graduate/GED	858 (22.0%)	423 (21.2%)	435 (22.8%)
1+ year of college	334 (10.3%)	183 (12.1%)	151 (8.4%)
Age of Mother at First Birth			
Less than 20 years	1,168 (27.0%)	602 (28.4%)	566 (25.6%)
20 years or older	2,644 (73.0%)	1,251 (69.2%)	1,329 (73.3%)
Ever Had Sex			
Yes	1,555 (39.8%)	754 (40.8%)	801 (38.8%)
No	2,257 (60.2%)	1,140 (59.2%)	1,117 (61.2%)

[a]Raw (unweighted) numbers, but weighted percentages

5.3 Latent Class Analysis

As shown in Table 5.2, the model fit statistics indicate that a three-class solution is the best-fitting model for both sex groups. For both samples, the BIC (female: 13168.89; male: 13854.51) decreased and after three classes continued to increase. The lower BIC scores coupled with high entropy demonstrate that the 3-class solution was appropriate and distinct. The non-significant p-value of 0.8024 indicate that the additional class in a 4-class solution adds no substantial value for the male sample. However, despite the Lo-Mendall statistic indicating a nonsignificant difference between 2 and 3 class models for the female sample, the item probabilities and class size of the smallest class (14%) indicate a large enough proportion to report as a meaningful pattern of adolescents' pregnancy intentions; in addition to the BIC supporting the selection of a 3-class solution. The labeling of the classes is based on the patterns and unique characteristics of the classes, taking into consideration the three domains of the conceptual model: *affect, self and semantic meaning*, which frame the study.

Among the three-class solution for each sex, there are some similarities and differences in the classes that emerged from the data. Across both sexes, Immediate Pro-pregnancy and Delayed Pro-pregnancy intention classes were identified. Ambivalent-pregnancy and Anti-pregnancy were each unique to female and male participants, respectively. Below the class solutions by sex are described in detailed.

Table 5.2 Model Fit Statistics for Latent Class Analysis Models

Classes	LL	AIC	BIC	Entropy	LMR(p)
Adolescent Females					
2	-6503.012	13072.023	13255.056	0.975	0.0045
3	**-6395.782**	**12891.564**	**13168.886**	**0.830**	**0.3080**
4	-6363.686	12861.372	13232.984	0.714	0.6542
5	-6342.381	12852.762	13318.664	0.748	0.7865
Adolescent Males					
2	-6817.439	13700.879	13884.327	0.990	0.0000
3	**-6738.277**	**13576.555**	**13854.507**	**0.850**	**0.0111**
4	-6698.389	13530.777	13903.233	0.782	0.8024
5	-6679.545	13527.090	13994.049	0.806	0.7869

5.3.1 Three-class Solution for Adolescent Females

Based on the three-class model, the classes for female adolescents were labeled as: *Delayed Pro-pregnancy* (N=1097, 58%), *Immediate Pro-pregnancy* (N=539, 28%), and *Ambivalent-pregnancy* (N=257, 14%). Table 5.3 describes the item probabilities for each of the classes.

Delayed Pro-pregnancy, the largest class, was characterized by high probabilities of wanting a pregnancy (0.999) and intending to have children at some time (0.984), but greater desires for later timing of 5 years or more for a future pregnancy (0.921). In this class, female participants are characterized by positive affect for pregnancy in the future, but negative feelings for the present. The idea of having children holds value and semantic meaning, in that about 80% identify being somewhat or bothered a great deal in not being able to have children.

The second largest class, Immediate Pro-pregnancy, was characterized by high probabilities of wanting children (0.998) and intending to have children at some time (0.994) in the future. Like the Delayed Pro-pregnancy class, having children holds value. However, the timing of a pregnancy was more varied in the Immediate Pro-pregnancy class. Thirty-nine percent expressed wanting a child within 2 to 5 years and another 57% expressed having a child more than five years in the future. The feelings about a pregnancy happening now are also varied with moderate probabilities of being a little upset (0.572) and pleased (0.317). Unlike the Delayed Pro-pregnancy class, female participants in this class are more flexible in their perspectives of being pregnant now in comparison to the future.

The Ambivalent-pregnancy class, the smallest class, was characterized by high probabilities of not wanting children (0.894) and negative feelings about a pregnancy now (0.734). Unlike the other classes, female participants in the Ambivalent-pregnancy class were notably not bothered by not having children in the future. However, there was some ambivalence on future planning of a pregnancy (0.538) that did not align with the strong negative perspectives as it related to affect and semantic meaning.

Despite the differences between classes, early childbearing was perceived as acceptable across all the classes. It is noteworthy that Those in the Immediate Pro-pregnancy class reported the highest probability (0.916) of accepting early childbearing in comparison to those in the Delayed Pro-pregnancy (0.786).

5.3.2 Three-class Solution for Adolescent Males

For male adolescents, the three-class model was labeled as: *Delayed Pro-pregnancy* (N=1577, 82%), *Anti-pregnancy* (N=181, 10%) and *Immediate Pro-pregnancy* (N=160, 8%). While there are similarities in some of the classes, the distribution is vastly different by sex.

Similar to female participants, Delayed Pro-pregnancy is the largest class for male adolescents. It is characterized by high probabilities of wanting a pregnancy (1.000) and planning to have children at some time (0.996) but prefer later timing for a future pregnancy (0.938). About 90% express some negative feelings about getting someone pregnant now. Unlike the female participants in this class, male participants expressed fewer negative feelings (a little upset vs. very upset) about getting someone pregnant now. Despite current feelings related to pregnancy, the idea of having children is salient and has semantic meaning for male participants. About 80% expressed negative reactions to not being able to have children.

The second largest class, Anti-pregnancy, was characterized by high probabilities of not wanting children (0.938) and negative feelings of getting someone pregnant now. About 66% expressed not planning on having children at some time and 76% not at all being bothered by not having children in the future. Male participants in this class have strong negative affect toward pregnancy for the present and future. This class was unique to the male participants.

The smallest class, Immediate Pro-pregnancy, was characterized by high probabilities of wanting children (1.00) and intending to have children at some time (0.988) in the future. Like female participants, male participants demonstrated variability in the timing of when a pregnancy should occur and their feelings about getting someone pregnant now. In this class, about 75% expressed positive feelings (little and very

pleased) toward getting someone pregnant now, which was higher than the female participants. However, semantic meaning regarding their reaction to not being able to have children was varied. About 66% expressed being somewhat or bothered a great deal in not being able to have children, but a third also expressed not being bothered at all. Like the female participants, this class is more flexible in the pregnancy intentions as it relates to affect, semantic meaning and timing. Across the three classes, similar proportions perceived early childbearing to be acceptable.

Table 5.3 Estimated Conditional Probabilities by Latent Class

		Female			Male		
		Immediate Pro-pregnancy N=539, 28%	***Ambivalent-pregnancy*** N=257, 14%	***Delayed Pro-pregnancy*** N=1097, 58%	***Immediate Pro-pregnancy*** N=160, 8%	***Anti-pregnancy*** N=181, 10%	***Delayed Pro-pregnancy*** N=1577, 82%
AFFECT	**Wanting a pregnancy**						
	No	0.002	**0.893**	0.000	0.000	**0.938**	0.000
	Yes	**0.998**	0.064	**0.999**	**1.000**	0.030	**1.000**
	Don't know	0.000	0.042	0.001	0.000	0.031	0.000
	Feelings about pregnancy now						
	Very upset	0.000	**0.734**	**0.799**	0.000	**0.630**	**0.495**
	A little upset	**0.572**	0.215	0.192	0.208	0.269	0.393
	A little pleased	0.317	0.033	0.000	0.402	0.065	0.093
	Very pleased	0.107	0.014	0.002	0.376	0.013	0.000
	Don't know	0.004	0.004	0.007	0.014	0.023	0.019
SELF	**Plan to have a child at some time**						
	No	0.006	0.319	0.015	0.012	**0.660**	0.002
	Yes	**0.994**	0.142	**0.984**	**0.988**	0.101	**0.996**
	Don't know	0.000	**0.538**	0.001	0.000	0.239	0.002
	Timing for future pregnancy						
	Within next 2 yrs	0.037	0.000	0.009	0.042	0.000	0.000
	2-5 yrs from now	0.393	0.000	0.069	0.436	0.000	0.060
	More than 5 yrs	**0.569**	**1.000**	**0.921**	**0.522**	**0.968**	**0.938**
	Don't know	0.000	0.000	0.001	0.000	0.032	0.002
SEMANTIC MEANING	**Bothered by not having a child(ren)**						
	A great deal	0.489	0.037	0.412	0.301	0.012	0.299
	Some/A little	0.363	0.319	0.467	0.366	0.222	**0.493**
	Not at all	0.148	**0.643**	0.122	0.333	**0.764**	0.207
	Don't know	0.000	0.001	0.000	0.000	0.002	0.002
	Acceptability of early childbearing						
	No	0.079	0.149	0.202	0.227	0.224	0.274
	Yes	***0.916***	***0.849***	***0.786***	***0.773***	***0.744***	***0.710***
	Don't know	0.005	0.002	0.012	0.000	0.032	0.016

5.3.3 Demographic and Social Factors Associated with Class Membership

Table 5.4 presents the correlates of class membership relative to the Delayed Pro-pregnancy class, stratified by sex using multinominal logistic regression. There were significant differences between the Immediate Pro-pregnancy and Delayed Pro-pregnancy classes for adolescent females. After adjusting for various factors, age, race, receipt of public assistance, sexual activity and age of mother at first birth were associated with class membership. Older adolescent females had a greater likelihood of being classified as Immediate Pro-pregnancy intentions (aOR=3.38; 95%CI: 1.96, 5.82) versus Delayed Pro-pregnancy class in comparison to younger adolescent females. Hispanic adolescent females were 80% more likely to be classified in the Immediate Pro-pregnancy class (aOR=1.80; 95%CI: 1.06, 3.09) versus Delayed Pro-pregnancy class in comparison to White adolescents. Those who reported receiving public assistance within the past year (aOR=2.16; 95%CI: 1.29, 3.61) and those living in rural areas (aOR:2.09, 95%: 1.01, 4.32) were twice as likely to be classified as Immediate Pro-pregnancy versus Delayed Pro-pregnancy in comparison to those not on public assistance and in urban areas. In terms of sexual health, sexually active adolescent females had 3.79 higher likelihood (aOR=3.79, 95%CI: 2.25, 6.39) of being in the Immediate Pro-pregnancy class versus Delayed Pro-pregnancy in comparison to those who reported never having had sex. Those who reported their mother as a teen parent at first birth were more likely to be in the Immediate Pro-pregnancy class. Specifically, reporting their mother's first birth at 20 years or older had 51% lower likelihood of being in the Immediate Pro-pregnancy class versus Delayed Pro-pregnancy class.

There were no significant differences between the Ambivalent-pregnancy and Delayed Pro-pregnancy classes. Although not shown, there were significant differences between the Ambivalent-pregnancy and Immediate Pro-pregnancy classes for adolescent females (see Appendix B). In comparison to those in the Immediate Pro-pregnancy class, girls classified as Ambivalent-pregnancy were more likely to be younger, live in urban communities, non-sexually active, not have received public assistance in the past year and have a mother whose first birth occurred at 20 years or older.

Similar to adolescent females, age, race, religion, sexual activity and age of mother at first birth were significant predictors of class membership for adolescent males. Hispanic adolescent males were 48% less likely to be classified as Immediate Pro-pregnancy (aOR=0.52; 95%CI: 0.30, 0.89) and nearly three times more likely to belong to the Anti-pregnancy class (aOR=2.70; 95%CI: 1.26, 5.74) versus Delayed Pro-pregnancy in comparison to White adolescents. In comparison to the Delayed Pro-pregnancy class, those classified as Immediate Pro-pregnancy intentions were less likely to report being raised as Christian (aOR=0.34; 95%CI: 0.19, 0.62) or another religion (aOR= 0.33; 95%CI: 0.14, 0.76). In comparison to the Delayed Pro-pregnancy class, those classified as having Anti-pregnancy intentions were more likely yo be older (aOR=4.33; 95%CI: 2.07, 9.05), be sexually active (aOR=2.89; 95% CI:1.33, 6.31) and report having a mother whose first birth was before 20 years old (aOR= 0.28; 95%CI: 0.15, 0.53).

There were significant differences between the Anti-pregnancy and Immediate Pro-pregnancy classes for adolescent males (see Appendix B). In comparison to those in the Immediate Pro-pregnancy, male adolescents were more likely to be older, identify as Black or Hispanic, and raised on a religious practice. In comparison to those in the Immediate Pro-pregnancy class, adolescent males classified as Anti-pregnancy had greater odds of being sexually active and having a mother whose first birth was at 20 years or older.

Table 5.4 Multinomial Regression Predicting Class Membership Relative to Delayed Pro-pregnancy Class

	Female		Male	
	Immediate Pro-pregnancy aOR (95% CI)	***Ambivalent-pregnancy*** aOR (95% CI)	***Immediate Pro-pregnancy*** aOR (95% CI)	***Anti-pregnancy*** aOR (95% CI)
Age				
15-17 years	--	--	--	--
18-19 years	**3.38 (1.96, 5.82)***	1.37 (0.87, 2.16)	1.49 (0.77, 2.87)	**4.33 (2.07, 9.05)***
Race/Ethnicity				
White	--	--	--	--
Black	0.71 (0.35, 1.45)	1.28 (0.74, 2.22)	0.57 (0.31, 1.07)	1.85 (0.79, 4.34)
Hispanic	**1.80 (1.06, 3.09)***	1.14 (0.64, 2.05)	**0.52 (0.30, 0.89)***	**2.70 (1.26, 5.74)***
Other	0.72 (0.13, 4.01)	0.87 (0.31, 2.43)	0.45 (0.17, 1.19)	0.47 (0.11, 2.00)
Residence				
Urban	--	--	--	--
Rural	**2.09 (1.01, 4.32)***	1.03 (0.55, 1.93)	1.06 (0.59, 1.89)	2.01 (0.87, 4.67)
Religion raised on				
None	--	--	--	--
Christianity	0.65 (0.36, 1.18)	0.62 (0.38, 1.02)	**0.34 (0.19, 0.62)***	1.18 (0.48, 2.90)
Other religion	0.67 (0.25, 1.76)	0.56 (0.26, 1.20)	**0.33 (0.14, 0.76)***	2.42 (0.62, 9.48)
Receipt of public assistance	**2.16 (1.29, 3.61)***	1.19 (0.75, 1.90)	1.51 (0.93, 2.46)	1.96 (0.99, 3.86)
Sexually active	**3.79 (2.25, 6.39)***	1.09 (0.65, 1.84)	1.05 (0.51, 2.15)	**2.89 (1.33, 6.31)***
Age of mother at first birth				
Less than 20 years	--	--	--	--
20 years or older	**0.49 (0.30, 0.82)***	0.91 (0.56, 1.48)	0.97 (0.59, 1.57)	**0.28 (0.15, 0.53)***
Parent communication-birth control	0.88 (0.45, 1.74)	0.91 (0.53, 1.55)	0.76 (0.45,1.29)	0.74 (0.36, 1.53)
Parent communication-condom use	1.28 (0.67, 2.44)	1.25 (0.76, 2.05)	0.91 (0.53, 1.55)	1.04 (0.45, 2.38)
Parent communication-waiting for marriage	1.10 (0.60, 2.02)	0.59 (0.35, 1.01)	0.93 (0.49, 1.76)	1.36 (0.66, 2.79)
Parent communication-none	0.52 (0.21, 1.27)	0.58 (0.25, 1.31)	1.09 (0.58, 2.05)	2.31 (0.75, 7.17)

*Bolded represent statistically significant findings with 95% confidence level does not include 1
REF: Delayed Pro-pregnancy class

CHAPTER SIX

Discussion, Implications and Conclusion

6.1 Overview

This chapter discusses the results of the two aims examined in this dissertation. The aims were (1) to explore the social factors that frame how pregnancy intentions are conceptualized among adolescents 15 to 19 years in Baltimore, MD, and (2) to characterize and examine the multi-dimensionality of pregnancy intentions among a national representative sample of U.S. adolescents 15 to 19 years old. Using a convergent mixed methods study design, the qualitative and quantitative data were analyzed simultaneously then integrated by comparing and connecting key findings to illuminate how adolescents conceptualize pregnancy intentions. The chapter begins with a summary of the results from each aim, followed by an integrated discussion of the findings, strengths and limitations, and implications for public health research and practice.

6.2 Summary of findings

In Aim 1, the study explored how adolescents living in Baltimore conceptualize and perceive sex, pregnancy intentions and reproductive decision-making. Two overall themes were identified: (1) stated pregnancy intentions and (2) shared schemas of sex and pregnancy. Findings demonstrated that pregnancy intentions for adolescents were expansive, spanning intentions to seek pregnancy now and to avoid early childbearing. Participants highlighted the complexity of pregnancy intentions, introducing the interplay between several shared schemas or perspectives, which were nested within a young person's social context. Five perspectives were identified as drivers of adolescents' pregnancy intentions: (1) sex is a gendered responsibility, (2) teen pregnancy is cyclical and common, (3) teen pregnancy is not a completely negative experience, (4) having a child fulfills emotional and relational voids, and (5) pregnancy should happen early, just not too early. The themes were endorsed by both adolescent males and females. The findings suggest that simply asking adolescents about intentions is insufficient. Rather, an approach consistent with reproductive life planning where research and practice more deeply examine young people's perspectives

on early childbearing within their social context will provide more guidance in addressing their reproductive health.

Aim 2 focused on characterizing and examining pregnancy intentions among a nationally representative sample of U.S. adolescents ages 15 to 19 years old. Given the limited findings on adolescent male intentions and assuming that there are sex differences in how intentions are perceived, results were stratified by sex. Guided by the Cognitive Social Model for Fertility Intentions as a conceptual framework and existing literature, three domains were used to capture the multi-dimensionality of pregnancy intentions: *affect, semantic meaning and self*. Using latent class analysis, three latent classes of pregnancy intention were identified for adolescent females (*Delayed Pro-pregnancy, Immediate Pro-pregnancy, and Ambivalent-pregnancy*) and males (*Delayed Pro-pregnancy, Immediate Pro-pregnancy, and Anti-pregnancy*). There were some similarities across sex for the classes identified; however, the distributions were vastly different. For both sexes, Delayed Pro-pregnancy was the largest class. Eighty-two percent of adolescent males were classified as Delayed Pro-pregnancy in comparison to 56% of adolescent females. The Immediate Pro-pregnancy class was another similarity across sexes, with 8% of adolescent males and 28% of adolescent females classified in this class. The Anti-pregnancy (10%) and Ambivalent-pregnancy (14%) classes were each unique to adolescent males and females, respectively. While there were similarities in pregnancy intentions by sex, it appears that adolescent females demonstrated more variability in what class they fell into.

Demographic and social factors were assessed as correlates of class membership. Age, receipt of public assistance, race, religion, age of mother at first birth and sexual activity were associated with class membership. The findings bolster the idea that pregnancy intentions are multi-dimensional, context specific and can differ by sex. Thus, creating an opportunity to explore adolescent pregnancy intentions more deeply to identify unique characteristics and strategies to properly target these young people with appropriate resources and interventions.

6.3 Integration of Findings

6.3.1 Pregnancy intentions are on a spectrum

Overall adolescents sought to delay childbearing, which is evident by the stated intentions in the focus groups and a majority falling into the Delayed Pro-pregnancy class. This aligns with current messaging and efforts to delay age of first sex and prevent teen pregnancies. However, this narrative presents an incomplete picture of pregnancy intentions. Findings from the current study show that there are also youth with ambivalent intentions and still others who not only intend to be pregnant, but also plan their teen pregnancies. These findings represent a full spectrum and suggest that current reproductive health messaging focused on teen pregnancy prevention, may not be relevant and salient to these adolescents. Thus, there is a need for a holistic continuum of efforts to support young people and their reproductive decision making that incorporates the significant role of social context on childbearing. A prevention-only approach to pregnancy fails to acknowledge the wide spectrum of reproductive health decisions and behaviors that adolescents may choose for themselves, including the deliberate decision to become pregnant. Instead, an approach that includes a range of strategies for teens who do not want to become pregnant and an equally robust menu of support for youth who desire to have children early would be most useful.

Parallel examples lie in the harm reduction and education fields, where researchers have understood the power of alternatives (Islam, Day, & Conigrave, 2010; Rosenbaum & Person, 2003). In the education field, educators have stressed the importance of supporting multiple tracks or paths for young people that extend beyond college as an only option. Research has shown that young adults who are supported through trade or vocational training are equally as stable as those deciding to attend college (Scheld, 2019). However, when young people are only given one option that does not resonate with their goals or experience, the increase rates of unemployment and other negative outcomes become the issue (Bozick, 2009; Prause & Dooley, 2011). The same strategy can be used for pregnancy. By first acknowledging the full

spectrum of pregnancy intentions and enacting supports to meet adolescents' needs, there is the potential to see where efforts are needed most and how to prevent those pregnancies that are indeed unintended and detrimental to young people. While supporting those that align with an adolescent's desired trajectory.

Adolescents in the Immediate Pro-pregnancy class were more like to be sexually active, low-income and have a mother who was a teen parent at first birth. This finding corroborates with current statistics that report minority and low-income youth experiencing the highest rates of teen pregnancy (Finer, 2010; Kost et al., 2017). While presented as a health disparity in the literature, the context shared in the focus groups present an alternative explanation for why adolescents may be open to earlier childbearing. Focus group participants noted that early and intentional childbearing may serve as facilitators of emotional support and healthy decision-making for young people, including access to resources that otherwise would have been missed. Pro-pregnancy intentions were linked to transformative behaviors and opportunities to undo past traumas. Work done with homeless youth corroborate this sentiment (Begun, 2015; Begun, Barman-Adhikari, O'Connor, & Rice, 2020; Ruttan, Laboucane-Benson, & Munro, 2012). For these young people, when given the right financial and social supports, early childbearing was not linked to negative outcomes (Begun et al., 2020). It shifts the focus to ask whether disparities exist not because of age, but rather the lack of resources to support young people who desire earlier childbearing.

These findings support previous research suggesting that not all teen pregnancies are unintended or viewed as negative experiences by young people (Dippel, Hanson, McMahon, Griese, & Kenyon, 2017; Kaufman et al., 2007). Delayed Pro-pregnancy and Immediate Pro-pregnancy are similar in that adolescents classified in these classes were more likely to have positive attitudes toward pregnancy but varied in their timing. Those in the Immediate Pro-pregnancy class were more open to a pregnancy occurring sooner, and it was not viewed negatively. A study conducted among foster care youth found that parenthood filled the void of emotional support and identity that was often experienced by youth in the foster care system, as well as provided a sense of hopefulness for the future (Aparicio, Pecukonis, & O'Neale, 2015; Combs, Brown,

Begun, & Taussig, 2018). In another study conducted among socioeconomically disadvantaged Black young men ages 18 to 25, participants reported "having a child meant I had a real life" (Alexander et al., 2019). Based on prior research, those classified as Immediate Pro-pregnancy may be coming from far more vulnerable backgrounds, where early childbearing is viewed differently and positively.

In order to support the full range of pregnancy intentions for young people, a paradigm shift is needed. The perspective of teen pregnancy as a social problem is often stigmatizing for vulnerable youth, like those represented this study (Anastas, 2017; Furstenberg, 2016). For less privileged, vulnerable youth, delaying childbearing may not significantly increase their social mobility; therefore, more nuanced conversations regarding the intersectionality of race, class and age are necessary (Furstenberg, 2016; Geronimus, 2003). Recent findings demonstrated that low income and minority youth reported no adverse educational or employment consequences of teen childbearing in comparison to more advantaged and White youth (Gorry, 2019). As seen from the multiple perspectives shared by adolescents, the context in which these young people live and see the world are indicative of their stated pregnancy intentions. Future research and policy require a greater understanding of pregnancy and its potential of being viewed as an opportunity in social environments where resources are limited for social and financial advancement.

6.3.2 Adolescent males' pregnancy intentions are the missing link

There are noteworthy sex differences in how pregnancy intentions are perceived by adolescents. Adolescent boys and men are more likely to have more favorable attitudes toward pregnancy (Kane et al., 2019; Lindberg & Kost, 2014; Lohan et al., 2010). There is evidence that adolescent males hold more idealistic views of pregnancy than their partner, believing that a baby would not drastically change their daily lives (Condon, Donovan, & Corkindale, 2001). The findings from this study support those claims and provide nuance as to why. In alignment with previous research, the qualitative findings from the current study report, adolescent males as being perceived to be less responsible and immature; posing pregnancy and

reproductive decision-making as a woman's issue (White, Hopkins, & Schiefelbein, 2013). This permitted adolescent males to relinquish the consequences and what may come with unprotected sex (Daugherty, 2016). Earlier research has linked traditional views of masculinity, such as anti-femininity, toughness, and status as drivers for adolescent males' attitudes, intentions and decision-making around reproductive health (Marsiglio, 1993; Pleck, Sonenstein, & Ku, 1993). Adolescent males from vulnerable backgrounds were more likely to be pleased about an unplanned pregnancy and viewed fatherhood as validating their masculinity. After accounting for background characteristics, traditional masculinity was linked to inconsistency in condom use and less belief in male responsibility to prevent pregnancy (Marsiglio, 1993).

Still, roughly 10% of adolescent males were classified in the Anti-pregnancy class with strong feelings against having a child now or in the future. Adolescent males in this class were more to be sexually active and identify as minority youth. This aligns with earlier work focused on adolescent males outside of the United States. A study among Australian adolescent males explored factors related to decision-making around an unplanned pregnancy (Corkindale, Condon, Russell, & Quinlivan, 2009). Three sub-groups were identified, with 10% being labeled as "unwilling/unready" for a future pregnancy. This group was more likely to decide to have an abortion in comparison to the other groups who opted to keep the pregnancy or leave the decision up to their female partner. It is likely that these young men may have already experienced a pregnancy with a partner, have children or more interested in other goals (Marcell, Raine, & Eyre, 2003), which may drive their current anti-pregnancy intentions. Future researchers should more explicitly engage teen fathers or those that report a prior pregnancy. This group may be considered high risk and worth exploring their sexual behaviors such as condom use, partner communication about sex or number of partners; and in turn, link clinical and educational resources to support their pregnancy intentions.

In the adolescent male focus groups, participants discussed the limited options for boys in upholding their stated intentions when pregnancy was not wanted. Girls had non-barrier options to protect from pregnancy, therefore boys were dependent on them to remain committed to those methods. A few

qualitative studies have explored sex dynamics as it relates to pregnancy intentions; of which young men presume young women to have more control over when and how a pregnancy occurs, the use of contraceptives, and overall more options (Davies et al., 2004). In other studies, adolescent males, particularly non-Hispanic Black males, were more likely to report unmet needs for family planning, lacking reproductive agency (Hamm et al., 2019), feeling removed from decision-making and lacking knowledge around reproductive health (Choiriyyah et al., 2015; Hossain, Bronner, Dennis, & Udo, 2016; Marcell et al., 2016), all of which may serve as explanations for adolescent males' behaviors. This point illuminates the tension in how reproductive justice is achieved or deemed possible for adolescent males. This lens is driven by the power to decide; however, based on some of the perspectives of adolescent males there are limited opportunities for choice. Although power imbalances may exist across sexes, it became clear from the qualitative findings that reproductive justice was not an option for adolescent males. With limited focus on adolescent males' reproductive health, researchers and clinicians have missed the mark in supporting young men in identifying reproductive agency by enhancing their communication and decision-making skills. More efforts to engage adolescent males in pregnancy counseling through peers and trusted adults might offer opportunities to explore innovative ways to support them in identifying options within their scope. These options can include stronger communication with partners, use of different types of condoms for pleasure, and engaging in other pleasure seeking activities that would help to honor their own pregnancy intentions.

While the Anti-pregnancy class did not emerge for adolescent girls, it calls for more support in guiding adolescents to continually have discussions with their partners about their intentions. The potential for a mismatch in pregnancy intentions could lead to outcomes that are devastating for one partner, while welcoming to another (Shreffler, Tiemeyer, McQuillan, Greil, & Spierling, 2019; Stykes, 2018). Despite limited research conducted among adolescent couples, a few studies have shown that there is often a disconnect between partners (Kraft et al., 2010; Lewin et al., 2014; Sipsma, Ickovics, Lewis, Ethier, & Kershaw, 2011). In one study among expecting adolescent couples, there was low accuracy in perceiving their partner's

pregnancy intentions and low concordance between partners in their actual pregnancy intentions, demonstrating limited awareness of their partner's intentions (Lewin et al., 2014). Like young women, adolescent males are key contributors to sexual relationships and need strategic messaging and approaches to discuss their reproductive needs in tandem with their partners. Therefore, more emphasis is needed to include both adolescent males and females. By providing more tailored and specific programs that include adolescent males, it will better equip all young people to have autonomy in their reproductive decision-making (Ries & Sonenstein, 2006).

6.3.3 Pregnancy intentions are multi-dimensional and context-dependent

Pregnancy intentions are conditions based on and rooted in social perspectives that inform the context (Aiken & Potter, 2013; Rackin & Bachrach, 2016; Rocca et al., 2010). Aligned with the cognitive social model of fertility intention, study findings demonstrated that adolescents' formation of pregnancy intentions were heavily dependent on their social structures and personal perspectives. In both the qualitative and quantitative findings of this study, social factors related to demographic characteristics, social norms, family expectations, and cultural values were identified as key factors in framing how pregnancy intentions were formed. Prior work with minority adolescents has reported social and cultural factors related to values, norms, acceptability, economic background, and social support as integral components to how reproductive health decisions are made (Aiken et al., 2015; Arteaga et al., 2019; Shreffler et al., 2018). As shown in the conceptual framework and building on a socioecological model, multiple influences feed into an individual, and one cannot be explored in isolation (Blum et al., 2019). The interaction between macro-level (laws, economics, historical events) and interpersonal factors (family, peers, community and school) contribute to how adolescents lead healthy lives. Shared norms and goals at these multiple levels signal for adolescents what is appropriate and acceptable, which subconsciously and in some

cases deliberately frame how pregnancy intentions are formed (Secor-Turner et al., 2011; Teitelman, Bohinski, & Boente, 2009).

In the current study, only interpersonal level factors were tested. While parent communication about sex was not associated with class membership in this study, it has been noted to be a key factor in creating what is considered cultural and family norms (Commendador, 2010; Fletcher et al., 2015; Williams, Pichon, & Campbell, 2015). The focus groups highlighted the significant role parents have in what adolescents deemed as acceptable. For example, some parents encouraged early childbearing which supported the findings of the Immediate Pro-pregnancy class who were more likely to have a teen parent. Although not explored in the quantitative findings, the role of peers and partners were emphasized by both adolescent boys and girls in the focus groups. The study findings iterate that pregnancy intentions are conceptualized and framed by context.

However, pregnancy intentions are often operationalized as one-time, simple decisions that lack consideration of these multiple perspectives. As perspectives change within a context, it further complicates how adolescents base their pregnancy intentions. The findings from the quantitative aim demonstrate that multiple factors come into play when identifying intentions, which are not linear or necessarily intuitive. For example, the Delayed Pro-pregnancy, Immediate Pro-pregnancy, and Ambivalent-pregnancy classes highlight this distinction and build on the idea of how social influences or present circumstances may drive how intentions are formed, particularly as it relates to timing. Giving the critical developmental period of adolescence, timing is significant as they are experiencing constant changes physically, emotionally, relationally, and educationally. Classification in these classes is dependent on current relationship status and life goals, which are likely to change as adolescents mature and have more experiences. Study findings echo calls from other researchers for the reframing of pregnancy intentions to capture this nuance (Aiken et al., 2016; Gomez et al., 2019). The constant interaction of intrinsic and extrinsic factors suggests a need for intentions to be discussed and measured more frequently (Blum et al., 2019; Moreau et al., 2013). By

understanding youth priorities and influences, reproductive health services will better meet the demands of supporting young people in deciding what is best for themselves.

While pregnancy intentions are acknowledged as complex, limited research has focused specifically on adolescents and what may be unique to their experience. The findings from the current study highlight that adolescents, particularly those from urban communities, are inundated with multiple social perspectives that frame how pregnancy intentions are perceived and conceptualized. The value of exploring the social context in which young people develop their views of sex, pregnancy and reproductive health more generally, creates an opportunity to offer an expansive approach to working with young people; one that is multileveled and youth-centered. The emphasis of a youth-centered approach is necessary in that adolescents are experts in their own lived experiences. Despite being young, they have values and perspectives about their reproductive lives which are exhibited in the diversity of the latent classes and emergent themes. Each of the perspectives used to inform pregnancy intentions for adolescents can and should be incorporated into interventions, programs and services designed to promote healthy reproductive health among adolescents.

6.4 Strengths & Limitations

This dissertation has the potential to make a meaningful contribution to the literature focused on understanding pregnancy intentions, particularly among adolescents. As one of the first studies to use sophisticated methods such as latent class analysis on this topic, it has expanded our understanding of pregnancy intentions as it connects to disparities, thus, broadening the scope of how prevention programs and efforts can meet the sexual and reproductive needs of adolescents. The strengths include its mixed methods approach, use of a large, nationally representative dataset, and inclusion of youth perspectives. Despite its strengths, the study has limitations that should be acknowledged. The limitations include the constraints of the existing NSFG measures, inability to infer causality, and the generalizability of the

qualitative findings to all adolescent populations. Below is an explanation of both the strengths and limitations of the dissertation.

6.4.1 Strengths

Novelty in approach. The findings from this dissertation provide a novel outlook on how pregnancy intentions can be discussed in clinical and practice settings with adolescents. By extending the literature on pregnancy intentions, and adolescent reproductive behaviors as a whole, efforts to improving adolescent sexual health would be more inclusive and reach vulnerable populations that are of most concern. Analytically, a youth-centered approach rooted in reproductive justice was used, permitting the phenomenon of pregnancy intentions to be explored more broadly, thus providing insight to the full spectrum of pregnancy intentions for adolescents. In prior work, limited research has taken this approach as it relates to pregnancy intentions, therefore supporting the novelty of this study. Moreover, providing a more comprehensive view of teen pregnancy intentions offers new insights for researchers and practitioners to consider as they seek to obtain optimal health for the adolescents they serve.

Mixed methods study design. The study includes both qualitative and quantitative methods to understand pregnancy intentions among U.S. adolescents. Given the strengths of each method, the complementary findings were integrated to draw conclusions and implications for future research. The qualitative data enriched the findings from the NSFG data, providing more details on the perspectives and experiences of adolescents. Then, the quantitative data allowed for the assessment of associations between social factors and pregnancy intentions that have not been assessed yet in the literature. The mixed methodology provided a broad, but yet specificity to the issue, which provided a greater understanding of how pregnancy intentions are conceptualized among adolescents. In addition, the application and extension of the conceptual framework was an added strength to this study design. It easily provided a framework to capture multiple aspects of adolescent pregnancy intentions.

National data source. NSFG is a national dataset with a high response rate that collects and reports data frequently on contraception, fertility and family life among a diverse, representative U.S. sample. The dataset collects data among adolescents from 15 years and older, which permits this study to explore various aspects of their present and future fertility and childhood background. Moreover, the recency of the data from 2015 to 2019, provides information on young people in today's society. Very few datasets collect extensive data on adolescents, and of those that do, are mainly cohort data from the late 1990s and early 2000s. The timeliness of the data provided insight and immediate relevance to adolescents in the current generation, who are starkly different from adolescents in the 1990s and early 2000s, on which most teen pregnancy literature is based on.

Inclusion of youth voices, especially adolescent males. This study leverages the value of adolescent perspectives and experiences through a youth-centered approach, which is often missing from research and policies regarding sexual and reproductive health. The qualitative component of the study allowed for youth voices to be included and inform how pregnancy intentions are conceptualized from an adolescent perspective. Prior research has primarily focused on young adults, 18 to 24 years old, therefore the inclusion of younger adolescents, 15 to 17, provided insight to how intentions are conceptualized from an earlier age. The youth were recruited from various neighborhoods in Baltimore, those with the highest and lowest teen birth rates, to ensure a balance representation. Furthermore, the focus groups were conducted among female and male adolescents. Discussions focused on pregnancy and childbearing are often female-centered; therefore, the inclusion of adolescent males expands knowledge from the male perspective and highlight areas of focus for future programming to meet the needs of all young people.

Use of latent class analysis. This study applied latent class analysis to identify profiles of pregnancy intentions among adolescents. Using this approach, this study is one of the first to incorporate several cognitive factors that influence pregnancy intentions and classify individuals into more robust profiles. One

of the critiques of how pregnancy intention is measured and captured in the literature is the lack of multi-dimensionality. With the inclusion of several indicators that represent various dimensions, the study presented a new way of classifying young people. This can support future efforts by public health practitioners to better identify best programs, strategies, and initiatives targeted toward young people, particularly those most at-risk for a truly unintended pregnancy.

6.4.2 Limitations

Constraints of NSFG. The study is limited by the measures provided in the dataset, and all the dimensions reported in the conceptual model being integral to how intentions are formed are not collected. For example, readiness, perceived vulnerability, or social factors such as partner dynamics and cultural norms are not included. Due to the focus on fertility, the dataset does not ask other questions around planfulness, future orientation, peer norms, family expectations or mental health outcomes that might be relevant and of interest for this population. The data is limited in that all the emerged themes from the qualitative data could not be examined quantitatively. In addition, due to the challenges of measuring pregnancy-related indicators, how individuals understand the questions informs how they respond to an item, which is particularly of concern for adolescents who might have not otherwise thought about pregnancy. Therefore, there is a potential for poor content validity.

Causality cannot be inferred. NSFG is a cross-sectional household survey, therefore the criteria of temporality needed for causal inference cannot be met. Only associations between the correlates and pregnancy intention profiles can be presented. Neither can the qualitative data elicit causality but rather is simply an exploration of the phenomenon.

Generalizability of findings to all U.S. adolescents. The focus groups were among a small sample of predominately African American youth from four neighborhoods in Baltimore, therefore limiting the generalizability of the findings to other racial and ethnicities. In particular, few Hispanic adolescents were

included in the focus groups. Greater diversity in the sample might have welcomed and introduced varying cultural norms and factors that would provide more nuance on the social influences pertinent to adolescents. Also, the findings from the qualitative data were context specific to adolescent experiences in Baltimore, which might be different for adolescents who live in other settings. Although teen mothers were represented, teen fathers were not. Lastly, participants were recruited from local high schools, and thus more vulnerable populations (e.g., youth not in school) were missed.

6.4 Implications for Public Health Research & Practice

To date, national campaigns have focused on preventing teen pregnancies by emphasizing contraceptive use; however, these narratives may be one-sided and not resonate within the context in which adolescents make their decisions. To better understand adolescents' reproductive health decision-making, it is necessary for researchers and health practitioners to consider the multiple, concurrent influences that inform adolescents' perceptions about pregnancy intentions and thus behaviors related to pregnancy planning (Buston, 2010; Cavazos-Rehg et al., 2013; Lindberg & Kost, 2014). Few researchers have explored how adolescents conceptualize pregnancy intentions (Herrman, 2007). An in-depth exploration of adolescents' perspectives and the factors that influence their reproductive decisions and behaviors provide opportunities for practitioners and policymakers to more appropriately allocate resources to support their well-being.

As the CDC's Division of Adolescent and School Health set their agenda for providing quality sexual health education and linking youth to sexual health services, a clearer distinction of pregnancy intention profiles and the factors associated with their reproductive behaviors would impact how messaging is tailored. For example, for adolescents with more ambivalent intentions, sexual health education can delve into the factors that drive their ambivalence and provide tools to support their decision-making process. Likewise, for adolescents on the extreme ends of desiring and avoiding pregnancies different approaches are necessary. As described earlier, those young people who align with the Immediate Pro-pregnancy class

may be more likely to become pregnant soon and early, thus establishing services and supports for them are vital.

In this case, we may be doing a disservice to young people and inherently perpetrating additional risk factors. The goal of quality sexual and reproductive supports is not to segment populations of young people, but rather diversify the approaches and strategies to providing adolescents with the resources they need to thrive. Further supporting the idea that the single narrative or one size fits all approach is insufficient. In the state of Maryland, policymakers recently proposed Bill HB0401 ("Public Schools – Pregnant and Parenting Students – Policies and Reports,") to support and improve the educational outcomes of pregnant and parenting adolescents. This initiative is an example of an approach that acknowledges young people, and also establishes efforts to mitigate negative outcomes. This policy does not penalize young people for their reproductive decisions, but rather supports their right to choose and is consistent with a reproductive justice lens.

Public health practitioners may be challenged to expand and adapt resources to be comprehensive and reflective of youth needs, especially for more vulnerable youth. Within the clinical setting, clinicians can use brief questionnaires and screeners to continually assess where young people are regarding their intentions and use it as a platform to discuss options for protecting and promoting their reproductive well-being. For example, the inclusion of adolescent males is paramount to strengthening sexual and reproductive health services, highlighting opportunities for education, resources and strategies to support individuals and young couples (Waller & Bitler, 2008). Health educators can use this information to guide individual and group sessions with young people on how intentions may inform their behaviors. It supports the idea of reproductive life-planning which can easily be integrated into sexual health curricula, allowing for young people to continually adjust their intentions based on their social context and personal needs.

It would be remiss of me not to acknowledge that youth from vulnerable communities may not have the reproductive autonomy to plan their reproductive lives; however, the findings of this study

demonstrate the need for clinicians and practitioners to be more intentional in identifying opportunities to have these conversations with young people. Within wellness visits or school-based health centers where sexual health is discussed, adolescents should be guided to discuss where they lie and then offered pathways in supporting those intentions. On a national level, legislation that supports expansive reproductive health services for adolescents, including those who are pregnant and parenting are essential. When services are comprehensive, youth feel supported and empowered to make decisions that best fit their circumstances. Thus, leading to healthier adolescents and families in the long run.

6.5 Conclusion

With a youth-centered approach, the study was able to capture the multi-dimensionality of pregnancy intentions, exploring the contextual, attitudinal and demographic factors related to reproductive perspectives and decision-making for adolescents. The qualitative work with adolescents in Baltimore, illuminated shared social perspectives which inform and frame how pregnancy intentions are conceptualized and developed for young people. Perspectives around social norms, gender dynamics, and family expectations were integral in young people's stated intentions. On a national level, the findings further cemented the spectrum of pregnancy intentions among adolescents, showing similarities and differences by sex and other demographic characteristics. While a majority of adolescents desired to delay pregnancy, a notable proportion were classified as Pro-pregnancy with positive desires toward early childbearing. The findings provide evidence to support expanding current sexual and reproductive services to meet the full spectrum of reproductive needs of adolescents, a shift from a prevention-only approach. As explained, pregnancy intentions and norms around early childbearing, which are dependent on social context, may serve differential roles and purposes for adolescents in certain communities. By better understanding and acknowledging adolescents' pregnancy intentions, programs and policies become more equipped to address and mitigate the actual causes of disparities, which may be more linked to inadequate

access to resources that support all young people. The findings from this study challenge future work and research to shift our current paradigm in how adolescent reproductive health is perceived, but rather creating a menu of options that is congruent with the full spectrum of intentions a young person may experience.

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APPENDIX A

Youth Focus Group Guide

Thank you for agreeing to participate in this focus group. My name is **[INSERT NAME]** and I will be leading our discussion today. This is **[INSERT NAME]** and she/he will be taking notes for us. We want to hear your opinions about teen pregnancy prevention efforts in Baltimore. Questions focus in four main areas: sexual health education, access to reproductive health services, long acting birth control methods, and recommendations for teen pregnancy prevention programs. We want everyone to participate, but you do not have to respond to every question. As we asked your consent to record, we are going to turn on the recorder and begin the interview. The notes and the recording are to help us remember everything that was discussed but confidentiality is guaranteed. Your name will not be associated with these notes in any way. All names will be removed from the focus group transcripts and notes before data analysis.

Opening Question

1. Let's go around the room and have each one of you introduce yourself – first name only and tell us about one of your favorite memories from high school.

A. Sexual Health Education

1. What types of information do people your age receive about sexual and reproductive health topics, such as how the reproductive health system works, or different birth control options, or how to use condoms?
    - Where do they generally get this information?
    - Are there other people or places that might also be able to provide this type of information? Please describe.
2. What happens when someone your age receives different messages from different sources? For example, they may learn something in school that is different from what a friend or a parent has told them.

B. Access Family Planning/Reproductive Health Services

1. What do you think of when you hear the words "family planning" or reproductive health"?
2. If you/or your friend told you that they didn't want to get pregnant or get someone else pregnant where would you tell them to go? Who would you tell them to talk to?
    - What services/programs in particular that are at these places would you use or tell your friends about (e.g., different kinds of birth control, free/low cost services contraceptives)?
    - What about certain people to talk to?
    - What about these people and/or places makes you suggest them?
    - Are there places that you or your friend avoid going to?
    - What might prevent you/your friends from using these services/programs?
3. How easy is it for people your age to get the reproductive health services they need or want?

C. Knowledge/Awareness of LARC

I would now like to specifically talk about the long acting reversible contraception birth control methods, which we call LARCs. Both implants (Impanon and Norplant) and IUDs (Mirena or ParaGard) are considered LARCs

1. Tell me what you know about LARCs.
    - Who talked to you about LARCs?
    - In what setting did someone discuss LARCs with you?

- What did they tell you about LARCs?
- How many, if any of your friends are using LARCs?
- How do you think people feel about LARCs?
- What, if anything, have you said to your partner about LARCs?

D. Recommendations for Teen Pregnancy Prevention programs

1. Think about a teen that you know who has been/gotten someone pregnant? How do you think it affected her/him?
2. What kinds of actions/steps can teens take to prevent pregnancy?
    - Challenges
    - Potential solutions
3. What types of resources are available to prevent teen pregnancy?
    - For teens
    - For families
    - In schools
    - In communities
4. What is missing that would help prevent teen pregnancy?
    - For teens
    - For families
    - In schools
    - In communities

Closing

Those are all of the questions we have. Is there anything you would like to share that we did not ask about?

Thank you so much for your time.

END RECORDING

Aim 1 Codebook

Family	Code	Description
Sexual Health Education (received or missing)	SHE_school	sexual health education received in or missing from school (will sometimes be double coded with PRE_missing)
	SHE_family	discussions and interactions with family members about sexual health (will sometimes be double coded with PRE_missing)
	SHE_peers	discussions and interactions with peers about sexual health (will sometimes be double coded with PRE_missing)
	SHE_providers	discussions and interactions with healthcare providers about sexual health (will sometimes be double coded with PRE_missing)
	SHE_others	discussions and interactions with other people (not included in other SHE codes) about sexual health
	SHE_media	sexual health information received from different forms of media including television, social media, movies, etc.
	SHE_experience	sexual health lessons learned by experience or taught to self
	SHE_topics	responses to general messages heard by young people about sexual health (source is unspecified or universal "they")
	SHE_mixed messages	decisions made related to multiple messages from different sources
Reproductive Health	RepH_knowledge	knowledge, or lack thereof, of family planning/reproductive health
	RepH_resources	discussion of who to speak to, what to do, and where to go for reproductive health information and services
	RepH_avoid	discussion of people and places to avoid going for reproductive health information and services
	RepH_access	description of facilitators and barriers to seeking reproductive health services
Contraception (all methods including hormornal bc, LARCs, condoms, and withdrawal)	CONT_knowledge	knowledge, or lack thereof, of different methods of contraception
	CONT_perceptions	discussion of how people feel about contraceptives
	CONT_decisionmaking	factors related to the decision to use contraception or not
	CONT_abortion	discussion of the decision to have an abortion
	CONT_experiences	discussion of personal or other's experiences with contraceptives
Prevention	PRE_abstinence	discussion of abstinence as a teen pregnancy prevention method
	PRE_future	discussion of prioritizing future college and career plans/goals over sex
	PRE_pregnancy intentions	discussion of desire or lack thereof to get (someone) pregnant
	PRE_recommendations	recommendations on ways to improve adolescent sexual health services and programs
	PRE_missing	discussion of what is missing in teen pregnancy prevention in different settings (will often be double coded with SHE codes)
Social Factors	SOC_religion	discussion of the influence of religious beliefs on having sex or having a baby
	SOC_partner	description of discussing sexual health topics with partner
	SOC_effects	discussion of how pregnancy affects the lives of young people
	SOC_gender	discussion of different experiences by gender in sexual health and prevention
	SOC_peer pressure	discussion of perceived pressure to have sex or not
	SOC_youth perspective	declarative statements, judgements, or perspectives of other's behaviors (they/them)

APPENDIX B

Table B.1 Distribution of NSFG Indicators by sexual activity and sex

	Female Respondents (N=1,894)			Male Respondents (N=1,918)		
	Not sexually active (60.19%)	Sexually active (39.81%)	Total	Not sexually active (58.24%)	Sexually active (41.76%)	Total
Do / If it were possible, would you want to have (a/nother) baby at some time?						
Yes	960 (84.21%)	663 (87.93%)	1,623 (85.69%)	994 (88.99%)	735 (91.76%)	1,729 (90.15%)
Probably yes	11 (0.96%)	5 (0.66%)	16 (0.84%)	5 (0.45%)	3 (0.37%)	8 (0.41%)
Probably no	6 (0.53%)	6 (0.80%)	12 (0.63%)	10 (0.90%)	7 (0.87%)	17 (0.89%)
No	155 (13.60%)	79 (10.48%)	234 (12.35%)	100 (8.95%)	55 (6.87%)	155 (8.08%)
Don't know	8 (0.70%)	1 (0.13%)	9 (0.48%)	8 (0.72%)	1 (0.12%)	9 (0.47%)
If you (your partner/ a female) got pregnant now how would you feel?						
Very pleased	30 (2.65%)	39 (5.36%)	69 (3.71%)	29 (2.67%)	82 (10.50%)	111 (5.96%)
A little pleased	68 (6.01%)	99 (13.62%)	167 (8.99%)	131 (12.07%)	148 (18.95%)	279 (14.99%)
A little upset	309 (27.32%)	277 (38.10%)	586 (31.54%)	386 (35.58%)	300 (38.41%)	686 (36.86%)
Very upset	714 (63.13%)	307 (42.23%)	1,021 (54.95%)	513 (47.28%)	234 (29.96%)	747 (40.14%)
Indifferent	3 (0.27%)	2 (0.28%)	5 (0.27%)	12 (1.11%)	12 (1.54%)	24 (1.30%)
Don't know	7 (0.62%)	3 (0.41%)	10 (0.54%)	9 (0.83%)	5 (0.64%)	14 (0.75%)
How sure are you that you will (not) have (a/nother) baby?						
Very sure	523 (54.54%)	351 (57.26%)	874 (55.60%)	---	16 (76.19%)	16 (76.19%)
Somewhat sure	389 (40.56%)	227 (37.03%)	616 (39.19%)	---	4 (19.05%)	4 (19.05%)
Not at all sure	47 (4.90%)	35 (5.71%)	82 (5.22%)	---	1 (4.76%)	1 (4.76%)
When do you expect your (first/next child) to be born (after this pregnancy)?						
Within the next 2 years	3 (0.31%)	21 (3.50%)	24 (1.54%)	3 (0.31%)	16 (2.29%)	19 (1.14%)
2-5 years from now	86 (9.00%)	171 (28.50%)	257 (16.52%)	70 (7.23%)	127 (18.17%)	197 (11.82%)
More than 5 years from now	866 (90.59%)	408 (68.00%)	1,274 (81.88%)	893 (92.25%)	554 (79.26%)	1,447 (86.80%)
Don't know	1 (0.10%)	---	1 (0.06%)	2 (0.21%)	2 (0.29%)	4 (0.24%)
Is it physically possible for you, yourself, to have a(nother) baby?						
Yes	1,116 (98.07%)	717 (97.95%)	1,833 (98.02%)	---	---	---
No	7 (0.62%)	5 (0.68%)	12 (0.64%)	---	---	---
Don't know	15 (1.32%)	10 (1.37%)	25 (1.34%)	---	---	---
If it turns out that you do not have (any / any additional) children, would that bother you?						
A great deal	417 (36.58%)	302 (40.05%)	719 (37.96%)	289 (25.87%)	256 (31.96%)	545 (28.42%)
Some	281 (24.65%)	181 (24.01%)	462 (24.39%)	285 (25.51%)	165 (20.60%)	450 (23.46%)

A little	204 (17.89%)	113 (14.99%)	317 (16.74%)	236 (21.13%)	113 (14.11%)	349 (18.19%)
Not at all	237 (20.79%)	158 (20.95%)	395 (20.86%)	304 (27.22%)	265 (33.08%)	569 (29.67%)
Don't know	1 (0.09%)	---	1 (0.05%)	3 (0.27%)	2 (0.25%)	5 (0.26%)
Do you intend to have (a/nother) baby at some time?						
Yes	939 (96.21%)	597 (96.92%)	1,536 (96.48%)	960 (96.97%)	698 (98.31%)	1,658 (97.53%)
No	20 (2.05%)	16 (2.60%)	36 (2.26%)	22 (2.22%)	11 (1.55%)	33 (1.94%)
Don't know	17 (1.74%)	3 (0.49%)	20 (1.26%)	8 (0.81%)	1 (0.14%)	9 (0.53%)

Table B.2 Multinomial Regression Predicting Class Membership Relative to Immediate Pro-pregnancy Class

	Female		Male	
	Delayed pro-pregnancy aOR (95% CI)	***Ambivalent-pregnancy*** aOR (95% CI)	***Delayed pro-pregnancy*** aOR (95% CI)	***Anti-pregnancy*** aOR (95% CI)
Age				
15-17 years	--	--	--	--
18-19 years	**0.30 (0.17, 0.51)***	**0.41 (0.24, 0.69)***	**0.23 (0.11, 0.48)***	**0.34 (0.14, 0.84)***
Race/Ethnicity				
White	--	--	--	--
Black	1.40 (0.69, 2.84)	1.80 (0.87, 3.70)	0.54 (0.23, 1.27)	**0.31 (0.12, 0.78)***
Hispanic	**0.55 (0.32, 0.95)***	0.63 (0.31, 1.28)	**0.37 (0.17, 0.79)***	**0.19 (0.09, 0.43)***
Other	1.38 (0.25, 7.65)	1.20 (0.23, 6.34)	2.12 (0.50, 9.00)	0.95 (0.19, 4.74)
Residence				
Urban	--	--	--	--
Rural	**0.48 (0.23, 0.99)***	**0.49 (0.25, 0.97)***	0.50 (0.21, 1.15)	0.52 (0.21, 1.30)
Religion raised on				
None	--	--	--	--
Christianity	1.53 (0.85, 2.78)	0.95 (0.52, 1.72)	0.85 (0.35, 2.10)	**0.29 (0.12, 0.74)***
Other religion	1.50 (0.57, 3.95)	0.84 (0.29, 2.41)	0.41 (0.11, 1.62)	**0.14 (0.03, 0.57)***
Receipt of public assistance	**0.46 (0.28, 0.77)***	**0.55 (0.31, 0.97)***	0.51 (0.26, 1.01)	0.77 (0.37, 1.63)
Sexually active	**0.26 (0.16, 0.44)***	**0.29 (0.16, 0.52)***	**0.35 (0.16, 0.75)***	**0.36 (0.14, 0.94)***
Age of mother at first birth				
Less than 20 years	--	--	--	--
20 years or older	**2.02 (1.22, 3.35)***	**1.84 (1.04, 3.28)***	**3.60 (1.89, 6.87)***	**3.48 (1.72, 7.03)***
Parent communication-birth control	1.14 ((0.58, 2.25)	1.03 (0.53, 2.02)	1.35 (0.65, 2.77)	1.03 (0.47, 2.26)
Parent communication-condom use	0.78 (0.41, 1.49)	0.97 (0.54, 1.76)	0.96 (0.42, 2.21)	0.88 (0.37, 2.11)
Parent communication-waiting for marriage	0.91 (0.50, 1.66)	0.54 (0.28, 1.03)	0.74 (0.36, 1.51)	0.68 (0.29, 1.58)
Parent communication-none	1.92 (0.79, 4.72)	1.11 (0.43, 2.87)	0.43 (0.14, 1.34)	0.47 (0.15, 1.53)

*Bolded represents statistically significant findings with 95% confidence intervals that do not include 1

CURRICULUM VITAE

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EDUCATION AND TRAINING

2017-Present **Doctor of Philosophy (PhD)**, Population, Family & Reproductive Health
Johns Hopkins University, Bloomberg School of Public Health · Baltimore, MD

2011-2013 **Master of Public Health (MPH)**, International Health & Maternal and Child Health
Boston University, School of Public Health · Boston, MA

2007-2011 **Bachelor of Science (BS)**, Brain Behavior & Cognitive Science
University of Michigan · Ann Arbor, MI

Certifications

2016-2019 State of New York, Credentialed Prevention Professional (CPP)

PROFESSIONAL EXPERIENCE

2020-Present **Project Coordinator**, Center for Adolescent Health, Johns Hopkins Bloomberg School of Public Health · Baltimore, MD

2019-Present **Consultant**, Hetrick Consulting, Inc. · Baltimore, MD

2017-Present **Consultant**, PILLARS Recovery Center · New York, NY

2017-Present **Trainer**, Botvin's Life Skills Training · New York, NY/Baltimore, MD

2018-2019 **Consultant**, The Youth Popular Culture Institute · Clinton, MD

2017-2020 **Research Assistant**, Center for Adolescent Health, Johns Hopkins Bloomberg School of Public Health · Baltimore, MD

2014- 2017 **Manager of Evidence-based Programs**, Children's Aid Society · New York, NY

2014-2016 **Waiver Service Provider**, Bridges to Health Department, Abbott House · Bronx, NY

2012 **Research Assistant**, Cameroon Baptist Convention Health Board/ Boston University · Boston, MA/ Bamenda, Cameroon

2009-2011 **Research Assistant**, Department of Physical Health and Rehabilitation, University of Michigan · Ann Arbor, MI

HONORS AND AWARDS

2020-2021 Fellow, MCH Epidemiology Doctoral Training Program, Johns Hopkins Center for Excellence

2019-2020 Trainee, Johns Hopkins Center for Excellence in Maternal and Child Health

2019 Recipient, Society for Adolescent Health and Medicine Early Career Development Award

2018 Honorable Mention, Rev. Melvin B. Tuggle Award for Community Excellence Health

2018 Recipient, Alpha Kappa Alpha Educational Advancement Foundation, Inc.

2018 Recipient, Cheryl Alexander Memorial Fund, Johns Hopkins School of Public Health

2018, 2019 Recipient, Jean and Sidney Silber Fund, Johns Hopkins School of Public Health

2016 Honoree on Brooklyn's Philanthropy Day for commitment to volunteerism

2016 Recipient, I-CREATE Service Award, Children's Aid Society

2012 Recipient, Boston University Women's Council Award

2009-2011 Recipient, University of Michigan LSA Scholarship

RESEARCH GRANT PARTICIPATION

2019 *XX-Factors: Reengaging Female Opportunity Youth in Baltimore City*
Sponsoring Agency: Bloomberg American Health Initiative
PI (Award Amount): Powell ($20,000)
Purpose: To reengage female opportunity youth by building onto an existing partnership to develop and implement a culturally, relevant positive youth development program
Role: Co-Investigator

2019-2020 *The Movement Teams' Future Leaders Program Evaluation*
Sponsoring Agency: Johns Hopkins Urban Health Institute
PI (Award Amount): Offiong ($5,000)
Purpose: To evaluate the acceptability and impact of the Future Leaders Mentoring program under The Movement Team in Baltimore, MD.

2017-2022 *A library-based prevention intervention for adolescents affected by parental drug use*
Sponsoring Agency: National Institute on Drug Abuse (1K01DA042134)
PI (total Award Amount): Powell ($898,160)
Purpose: To prevent early substance use and sexual health risk behaviors among urban Black adolescents affected by parental drug use through partnerships with libraries.
Role: Project Coordinator

PUBLICATIONS

1. Powell TW, Willis K, **Offiong A**, Lewis Q, Smith B. (in press). "Don't close the door on them": Recruiting and retaining vulnerable Black youth in prevention research. *Journal of Community Psychology*.
2. **Offiong A**. (2021). A new normal is paramount for public health research and practice. *American Journal of Public Health,* 111(1): 83-84.
3. Powell T, Jo M, Smith A, Marshall B, Thigpen S, **Offiong A**, Geffen S. (2020). Supplementing substance use prevention with sexual health education: A partner-informed approach. *Health Promotion Practice,* 1-9.
4. **Offiong A**, Lindberg DB, Jennings JM, Dittus PJ, Marcell AV. (2020). Parent, partner and individual contexts of very early first sex experiences among young men and their links to subsequent reproductive health outcomes. *Culture, Health & Sexuality,* 1-15.
5. **Offiong A**, Powell TW, Lewis Q, Smith B, Prioleau M. (2020). "I missed open arms": The need for connectedness among Black youth affected by parental drug use. *Children and Youth Service Review,* 114, 105072.
6. **Offiong A,** Lewis Q, Powell T. (2020). Making success tangible: Reengaging female opportunity youth in Baltimore, MD. *Perspectives in Public Health*, 140 (4): 187-189.
7. Hicks Harper PT, **Offiong A**. (2020). Hip Hop Development: Gifts from the roots for youth engagement in education and health prevention. In E. Adjapong & I. Levy (Eds), *#HipHopEd: The Compilation on Hip-hop Education* (Vol.2, 69-82). Peter Lang. https://doi.org/10.3726/b16731
8. Mmari K, **Offiong A,** Gross S, Mendelson T. (2019). Understanding the influence of food insecurity on risky behaviors among youth in six Baltimore neighborhoods. *Public Health Nutrition,* 1-8.

Under review

1. **Offiong A**, Powell TW**,** Gemmill A, Marcell AV. "I can try and plan, but still get pregnant": The complexity of pregnancy intentions and reproductive health decision-making for adolescents. Manuscript under review at *Journal of Adolescence*.

2. Lewis Q, Smith B, Powell TW**, Offiong A**, Prioleau M. "When a house is never a home": Housing instability among youth affected by parental drug abuse. Manuscript under review at *Child Abuse and Neglect*.
3. Powell TW, **Offiong A**, Lewis Q, Prioleau M, Smith B, Johnson R. "I've smoked weed with my daughter": Marijuana use among families affected by parental opioid use. Manuscript under review at *Children and Youth Service Review*.
4. Willis K, **Offiong A**, Smith B, Lewis Q, Burton M, Portee-Mason D, Glover D, Powell TW. We are better together: Engaging vulnerable youth in intervention development before and during the COVID-19 pandemic. Brief report under review at *Public Health Reports*.
5. Smith B, Lewis Q, **Offiong A**, Willis K, Prioleau M, Powell TW. "It's on every corner": Assessing risk environments in Baltimore, MD using a racialized risk environment model. Manuscript under review at *Journal of Ethnicity and Substance Use*.

Under preparation

1. **Offiong A**, Powell TW, Dangerfield D, Gemmill A, Marcell AV. A latent class analysis of pregnancy intentions among U.S. young men ages 15-19. In preparation for *Journal of Adolescent Health*.
2. Powell TW, **Offiong A**, Shetty M, Johnson R, Volk H. Perceived helpfulness of CBD in managing comorbid ASD symptoms in children. In preparation for *Journal of Autism and Developmental Diseases*.

PRESENTATIONS

1. **Offiong A**, Powell TW. (March 2020). "A family you ever wanted": A process evaluation of The Future Leaders Program in Baltimore City. *Roundtable session at the Association of Maternal and Child Health Program (AMCHP) 2020 Annual Conference. Crystal City, VA.*
2. **Offiong A**, Powell TW, Lewis Q, Smith B, Prioleau M. (March 2020). "I needed somewhere to turn to": Understanding and addressing the needs of African American youth affected by parental drug abuse. *Poster presentation at the Society for Adolescent Health and Medicine Annual Meeting. San Diego, CA.*
3. Lewis Q, Powell TW, **Offiong A**, Smith B, Prioleau M. (March 2020). When a house is never a home: Housing instability among youth affected by parental drug abuse. *Poster presentation at the Society for Adolescent Health and Medicine Annual Meeting. San Diego, CA*
4. Powell TW, **Offiong A**, Lewis Q, Prioleau M, Johnson R. (November 2019). "I've smoked weed with my daughter": Intergenerational marijuana use among families affected by opioid abuse. *Oral presentation at 147th American Public Health Association Annual Meeting. Philadelphia, PA.*
5. **Offiong A,** Lindberg L, Jennings J, Dittus P, Marcell A. (March 2019). Exploring factors associated with early sex onset among urban young men aged 15-24: The important role of parents and partners. *Poster presentation at the Society for Adolescent Health and Medicine Annual Meeting. Washington DC.*
6. **Offiong A,** Mmari K, Mendelson T, Gross S. (November 2018). Exploring the influence of food insecurity on risky behaviors among opportunity youth. *Oral presentation at the 146th American Public Health Association Annual Meeting. San Diego, CA.*
7. Powell TW, Jo M, Owens J, Marshall B, Smith A, **Offiong A**, Leaf, P. (November 2018). A multi-informant qualitative analysis of implementing an evidence-based intervention in Baltimore City Public Middle Schools. *Oral presentation at the 146th American Public Health Association Annual Meeting. San Diego, CA.*

TEACHING

2019- Present 380.640 - Children in Crisis: An Assets-based Approach to Working with Vulnerable Youth
Teaching Assistant, Johns Hopkins Bloomberg School of Public Health
Spring Enrollment: 2019 – 28, 2020 – 29, 2021 - 50

2018- Present 380.725 – The Social Context of Adolescent Health and Development
Teaching Assistant, John Hopkins Bloomberg School of Public Health
Spring Enrollment: 2019 – 12, 2020 – 16, 2021 – 16

2018 380.624 - Maternal and Child Health Legislation and Programs
Teaching Assistant, Johns Hopkins Bloomberg School of Public Health
Fall Enrollment: 2018 – 25

PROFESSIONAL SERVICE

Professional Societies

2021-Present Member, Society for Adolescent Health and Medicine (SAHM)
2019-Present Ad Hoc Reviewer, American Journal of Public Health (AJPH)
2018-Present Member, American Public Health Society (APHA)

Advisory Boards

2018-Present Board Member, Genius Patch, Detroit, MI
2015-2017 Staff Advisory Board Member, Children's Aid Society. New York, NY
2014-2017 Youth Advisor. Safe in Harlem Coalition. New York, NY
2014-2017 Council Member/Youth Advisor. Just As I Am Youth Empowerment. Brooklyn, NY